

ROYAL BOTANIC GARDENS,
KEW.

Period. GARDEN LIBRARY.



0062623

X



ROYAL
BOTANIC
GARDENS
KEW

ML

12/188



Digitized by the Internet Archive
in 2018 with funding from
BHL-SIL-FEDLINK

<https://archive.org/details/journalofhorticu3518hogg>

1883
January 11, 1883.

THE

JOURNAL OF HORTICULTURE,

COTTAGE GARDENER,

AND

HOME FARMER.

A CHRONICLE OF COUNTRY PURSUITS AND COUNTRY LIFE, INCLUDING POULTRY, PIGEON,
AND BEE-KEEPING.

CONDUCTED BY

ROBERT HOGG, LL.D., F.L.S.

Established



in 1848.

VOLUME V. THIRD SERIES.

JULY TO DECEMBER, 1882.

LONDON

PUBLISHED FOR THE PROPRIETOR 171, FLEET STREET.

1883.

LONDON:
PRINTED AT THE JOURNAL OF HORTICULTURE OFFICE,
171, FLEET STREET.



TO OUR READERS.

HAVING "returned thanks" no less than seventy times on the completion of the half-yearly volumes of this Journal for the support that has been accorded us, the good wishes that have been expressed, and the lively interest that has been manifested in our work, what can we say more than that our acknowledgments to our friends old and young, writers and readers, deepen with increasing years?

That we have much to gladden us and encourage us to further effort, this our last completed volume affords ample evidence; for in not one of all that have preceded it is the work of so many pens and the reflex of so many minds recorded. This shows, if anything can show, that the interest in gardening and kindred home pursuits is at least as active as ever, and that this activity will continue we have had satisfactory assurance during the present week.

Our object is to be useful, to increase the trade in all gardening and home appliances, to improve the culture of everything that yields profit and affords pleasure, to provide a field for discussion and the interchange of ideas between those who are equally animated with ourselves in the desire to impart information and acquire knowledge; and especially our hope is to remove difficulties under which the young and inexperienced labour.

To this end we invite all those whose wants we do not anticipate to ask, without apology or hesitation, for such information as they may need; and if it is in our power to do so we will give it readily, not as a task but as a pleasure.

Correspondents, too, will in the future, as they have done in the past, submit their experience on any perplexing subject that is published in our columns. Thus those who seek instruction on special matters often become instructors by procuring information of the utmost value and importance.

All who can impart or elicit knowledge, and assist in making clear what was before obscure, will be welcomed as helpers in the work which on so many good grounds it is so desirable to foster—the advancement of horticulture.

INDEX.

—0—

- ADIES WEBBIANA, 33
 Abutilon Thompsoni, 210; culture of and varieties, 493; for winter, 531; new varieties of, 575
 Acacia Farnesiana, 151; three useful, 403
 Achillea Parmica flore pleno, 229
 Achimenes, selection of from Chiswick trials, 177
 Acrocliniums, double varieties certificated, 533
 Adiantum cydoniifolia, 511
 Adiantum euneatum, 501
 Aeschynanthus, 345
 Agapanthus umbellatus, culture of, 493
 Ageratum Malvern Beauty, 177
 Allamandas, culture of, plagiarism, 99; 498 temperature for, 576
 Allium sacciferum, 175
 Alpine plants, selection of, 324
 Amateur's holiday in Scotland, 531
 American blight, the tar remedy 536
 Ampelopsis Veitchii, 242, 305; A. semipervirens, 243
 Anagallis tenella, 154
 Androsaces, notes on species of, 156
 Anemones, planting, 259, 465
 Anthurium Andreanum in Covent Garden, 343
 Antirrhinum Hendersoni, 39; versicolor, 259
 Ants, utilisation of in horticulture, 80; destroying, 450, 499
 Aphelexis, culture and varieties, 404
 Aphides, destroying black on Peach trees, 392
 Apples—D. T. Fish, syn. Warner's King, 151; The Cat-head, 157, 175; at Girtford, 360; crop in America, 249; the crop, 277; Pott's Seedling, 322; Reinette, Franche, and Pine Apple Russet, 343; Landsberger Reinette certificated, 346; Lady Henniker, 334; variations in, 376; effect of liquid manure on old trees, 386; for the north, 424, 474; Pott's Seedling, 425; The Domino, 428, 449; Cellini, 436; American importations, 448; Peasgood's Nonsuch, Ringer, and Tom Montgomery, 453; The Washington, 471; Lane's Prince Albert, 474; The Washington, 500; for market, 511; Ringer, Tom Montgomery and Early Julien, 519; Lane's Prince Albert, 520; Crab v. Paradise stocks for, 543; Hambleton Deux Ans, Hawthornden, history of, 601
 Aquatic plants, choice, 153, 154
 Aquilegia chrysantha, 151
 Arums, 306
 Arundo conspicienda, 153
 Araucaria, improving, 352; notes on species, 436, 966; cone of A. excelsa, 457; Bidwilli, 532
 Asparagus and Globe Artichokes, 271; Asparagus in autumn and winter, 447; notes on culture, 477
 Asperula hirta, 6
 Asphalt walks, making, 188
 Asters, selection of perennial, 357
 Astrocarum mexicanum, 572
 Attacus Mylitta and cocoon of, 63; Atlas, 123; Polyphemus moth and caterpillar, 182; Yama Mai, moth of, 254; cocoon and caterpillar, 293; Yama Mai, 349
 Anchendrane, 574
 Auriculas, potting, autumn-flowering, 27; for borders, 34; Mrs. Douglas, 199
 Avocado Pear, 581
 Azaleas, watering, 67; destroying thrips on, 92; for forcing, 373; culture and varieties, 494; A. narsissiflora, 498; for forcing, varieties of, 597
 BANANAS—value of as food, 321
 Barbacenia purpurea, 386
 Barberry fungus, 361
 Barr & Son, partnership of, flowers exhibited by, 11
 Bass, death of Mr. Abram, 176
 Battersea Park, notes on, 315
 Bean, Bunyard's Broad-podded Kidney, 175; selection of, 255
 Beckett House, 521
 Bedding plants, propagating, 221
 BEES—
 Artificial swarming, Norfolk Show, a professor of bee-keeping, 20; unsettled points, eating pollen, Show at Reading, Cheshire and Lancashire Association, 44; not swarming, 46; prolonging lives of queens, bog heather for, 65; heather for on wet land, 90; standard frame, 92; driving stocks, prolonging life of queens, 113; Berks and Bucks Show, 114; autumn treatment of stocks, forecasts, 137; removing supers from hives, 139; autumn treatment of stocks, 161; glass v. tin for honey, equalising colonies, 162; cold and food consumption, comb foundation v. feeding, Bee-keepers' Association's Show, awards of, 185; critique of South Kensington Show, Neighbour's prize hive, 209; a retrospect of season, 232; the South Kensington Show, 233; driving and stupefying, Hertford Show, 234; Lancashire and Cheshire Bee-keepers' Exhibition, 256; swarming v. non-swarming, 257, 333; Sussex Bee-keepers' Association, 258; driving bees, 260; exhibition at Dundee, the black bee and red clover, Derbyshire Show, 282; honey crop of America, 283; notes for beginners, 333; in winter, plants for bees, 304; British Bee-keepers' Association's certificated teachers, 305; the Stewarton and bar-frame hives, 330, 394; the Stewarton hive, preparing for winter, 351; the Stewarton hive, thirty years' progress, Worcestershire Bee-keepers' Association, 374; frame hives, meeting of apiarians, 395; hives and how to make them, 413; the art of bee-keeping, 435; prize hives at the Dairy Show, 435; purchasing stocks, 437; art of keeping, natural history of and social instincts, 463; costly hives and results, 464; plants for, 486; hives, 488, saving bees, removing eggs, young and old queens, 509; art of bee-keeping, natural history, 510; profits of, 512; art of keeping queens, 534; antiquity of ringingswarms, superstitions, 557; hiving swarms, size of
 BEES—continued.
 hives, overstocking, under-feeding, 579; the art of bee-keeping, the drone, 599; the Stewarton hive, 600
 Beetles v. Strawberries, 61; eating Strawberries, 127, 217
 Begonias A. F. Barron, Mrs. Stevens, and Thomas Moore, 39; gogoensis, 82; Tuberous, as border flowers, 120; notes on species of, 143; for bedding, 250; select ornamental-leaved, 222; large at Swanley, 223; at Forest Hill, 224; wintering tubers of, 425; semperflorens massiliensis, 429; at Swanley, 474; winter-flowering, 570
 Belgian horticulturists, visits to nurseries and gardens, 10; a week in—M. Pynaert's nursery, 223
 Benevolent (Gardeners') Institution, Mr. Perkins' appeal for, 99
 Berberidopsis corallina, 153
 Birch, origin of purple-leaved, 437
 Biron, presentation to Rev. H. B., 364
 Blackberries, American, 375; the Kittatiny, 474, 519; Parsley-leaved, 524
 Bog garden, 145
 Bomareas, notes on, 322
 Book, review of "Dictionary of Economic Plants," 178
 Borders, small v. large for fruit trees, 541
 Botanical phenomena, lecture on, 17
 Botanic (Royal) Society's report, 150
 Botany, "The New," 301
 Bougainvillea glabra, culture of, 590
 Bouquets, modern, 598
 Bouvardias, temperature for, 394; culture of, 450; Alfred Neuner, 543, 571; President Garfield, 570
 Bramble, the Parsley-leaved, 391
 Brick-kilns v. vegetation, Mr. Foster's trial, 176; trial on and verdict, 150
 British plants, two useful, 146
 Broccoli, Snow's Winter and Veitch's Autumn, 524
 Brussels Sprouts, Reading Exhibition, 542; the Aigburth, 568
 Budding and grafting, influence of stocks and scions, 173, 205; curious examples of, 296; fruit trees, 115
 CABBAGES—Wheeler's Imperial, 101; and how to grow them, 176; preparing for winter, 426
 Cactus Jenkinsonii, 578
 Calanthes at Marston, 571
 Calla aethiopica, 578
 Calochorti, culture of, 601 [601
 Camellias, cutting blooms of, Campanula hederacea, 154, 176, 199; pyramidalis in borders, 223; C. pyramidalis, 276
 Canterbury Bells, 2
 Capsicum Little Gem, 476
 Carnations and Picotees, proposed show of at Oxford, 34; for towns, 55; Mary Morris, 104; certificated varieties, 105; raising from seed, 106; layering, 139; Gloire de Nancy, 150; Wakefield Show, 151; Mary Morris, 183; Duchess of Westminster, 198; Virgo, 273, 296; treatment of, 601
 Carrot difficulties, 523; failures and the tar remedy, 565
 Carters' Holborn Seed House, 294
 Cassia corymbosa culture, 415
 Caterpillars on Oaks, 187, 297; in 1882, 246; destroying Cabages, 352
 Cattleya Whitei, 82
 Ceanothus for bedding, 423
 Celeriac, three-coloured, 476
 Celery, stimulants for, 45; in winter and spring, 553
 Charcoal as manure, 67
 Chenopodium atriplicis, 243
 Chermes abietis, 278
 Cherries, good varieties for succession, cheap houses for, 74; house and varieties for, 393; the Morello, 474
 Chlora grandiflora, 32; perfoliata grandiflora, 131
 Christmas and church decorations, 564
 Chrysanthemum La Petite Marie, 38; maximum, 251; coronarium, 348; in London, new varieties, 385; notes on annual, 393; fixtures of shows, Madame Desgranges, 428; La Nympe, Sœur Melanie, 429; in the London parks and gardens, 430; segetum, 452; Lord Wolseley, Crimson King, M. Desbreaux, and F. A. Davis, 454; Mr. Henslow's lecture on, 455; for decoration, 475; Sœur Melanie, 500; showing and dressing, 518; manure for, King of the Crimson, 549, 567; Duke of Albany and Ceres, 553; proposed election, late white, Rosa Bonheur, 570; Golden Circle, 571; Sœur Melanie, 575; growing specimens, 580; dressing and exhibiting, 588; white varieties, 591; a specimen, 595
 Chrysanthemum Shows—Bath, Birmingham, 502; Bristol, 484; Brighton, 501; Brixton, 458; Canterbury, 484; Chesterfield, 533; Dartford, 483; Kingston, 480; Lambeth, 459; Leicester, 500; Liverpool, 504; Manchester, 485; Northampton, 503; Plymouth, 484; Putney, 460; Southampton, 460; South Shields, 532; Staines, 504; Stoke Newington, 459; Tooting, 483; Tunbridge Wells, 481; Walton, 483; Wimbledon, 403; Westminster Aquarium, 482
 Cinerarias, stopping shoots of, 436
 Clarke, James, death of, 475
 Clay's fertiliser v. slugs, 57
 Clay, burnt for gardens, 187
 Clematises in pots, 139; coccinea, 273; propagating, 511
 Clerodendron fallax from seed, 208
 Climbers for conservatory, 21, 162, 436
 Coca, culture of, 200
 Cochlearia alpina, 52
 Cocoa-nut fibre for Peas, 320
 Celogyne barbata, 592
 Coleuses from seed, 195
 Comet influences, 533
 Commelina caelestis, 243
 Compartmentia macroplectron, falcata vera, 82
 Conifers for hedges, 559
 Conservatories in summer, 336
 Corn mildew, 368, 369
 Cornus mascula variegata, 153
 Corydalis glauca, 250
 Cosmos bipinnatus, 265; diversifolius var. atro-sanguineus, 381; bipinnatus var. parviflorus, 553
 Cottagers' cropping, 53
 Cranberries, 178
 Crotons aureo-marginatus and Dayspring, 38; Thomsoni, 271; Eyrei, 347
 Cucumbers—pruning, temperatures for, 43; The Cardiff Castle, 64; culture of for winter, 192; disease, 284; in America, 408; disease, eradicating, 423, 470; curing disease of, 519; disease and high temperatures, 567
 Cucumbers and Melons failing, 381
 Cucurbits, ornamental, 139
 Culzean Castle, 389
 Cunninghamia sinensis, 553
 Cupressus Lawsoniana Silver Queen, 249
 Currant Black Champion, 202
 Cymbidium Mastersii, 388
 Cypripediums, notes on hardy, good species of, 194; Arthurianum, 347; reticulatum, 364; calceolus culture, 415; seligerum majus and other hybrids, 429
 DAHLIAS—Gem, 82; single, 104; edges, 199; National Show, 243; John Henshaw, Ruby King, and Christine, 255; White Juarez and Glare of the Garden, 295; Harrison Weir, John Henshaw, 319; single at Tottenham, select varieties, 337; new varieties certificated, 347; single varieties at Oxford, 344; viridiflora, 363; effective varieties, 387; notes on single, 427
 Daisies, single, quilled, 150
 Damsons, the Prune and Cluster, 474, 519
 Daphne Mezereum, propagating, 46
 Delphiniums, good double varieties, 78
 Dendrobium superbiens, 410
 Dew, formation of, 404, 447; in hothouses, 499, 522, 544, 564
 Digging and manuring, 566
 Draecenas, propagation and culture of, 577
 Ducks in garden, 46
 Dundee, proposed International Show at, 548
 Durdham Downs Nursery, 432
 EARLY Nurseries, 225
 Earthworms in New Zealand, 519
 Earwigs v. Nectarines, 163
 Eceremocarpus seabear, 331
 Echeveria Peacockii, 79; wintering, 199
 Echinum albicans, 29; E. rubrum, 77
 Edge Hall, 245
 Edinburgh and the Pilgr Nurseries, 339
 Edinburgh nurseries, 365
 Elaterium, 138
 Electric light and vegetation, 235; for conservatories, 570
 Emigrants, a warning to, 224
 Epidendrum bicornutum, 465
 Epping Forest Naturalists' Club, 249
 Ericas and Epacris for winter, 463; notes on, 545; Erica gracilis autumnalis, 581
 Erodiums, notes on species, 109
 Eryngiums, notes on, 115
 Erythroniums, 292

Euonymus, propagating 240; striking, 279, 290
Eutoca viscida, 145
 Evergreens, transplanting, 397
Exacum macranthum, 221
 Exhibiting—the good old times, 84; ethics of, purchasing flowers for, 219

FARM—Short-horned cattle, history of, Booth's breed, 22; Short-horned cattle in Australia and America, high prices of, 47; maximum produce of crops, 68; weeds, eradication, 69; maximum crops, 92; maximum produce of crops, 116; four-course system of cropping, 140; Norfolk system of cropping, harvesting, 163; breeding hunters and roadsters, 188, 212; Barley "Bigg," 190; sowing Trifolium, crops in Durham, the Scotch harvest, 213; Hereford cattle, 236, 262; Hop prospects, 237; prizes for crops, Rye Grass a second year, mites in hay, effects of salting, 238; scientific cheese-making, 262; influence of climate on cultivation, 284, 307; the seed harvest, Hop crop, 309; milking cows, 310; seed corn, notes on selecting, 332; agricultural distress, remedies for, Metropolitan Dairy Show, 333; seed corn for autumn sowing, 358; Beans for cows dangerous, 356; Devon cattle, 376; history of, 397; mules, usefulness of, feeding ewes, 399; neglected pastures and waste lands, 416, 437, 489, 512; dearth of sheep, 418; quantities and mixtures of seed for pastures, 438; cow-keeping, farm horse stables, 444; neglected pastures and park lands, renovating with manures, 466; Carrots for horses, Cabbages for cows, insurance of cattle, 492; manuring, 512; the Leicester breed of sheep, 537; ewes, feeding, cattle diseases, 538; improving pastures, 540; the Leicester breed of sheep, history of, 560; food for milch cows, tussock and moles in pastures, 561; maximum weight for age of cattle, 582; earth in stables, value of, 583; American yield of Maize, 583; weights of sheep, 602; earth floors for stables, 604
 Faulkner, death of Mr., 452
 Fencing, cost of split oak, 210
 Ferns for baskets, 86; Tree, notes on species, 230; raising from spores, 581
Ficus elastica for rooms, propagating, 426
 Flgs—trees not bearing, root-pruning, 115; Negro Largo, 128; not swelling, 187; pruning, 465
 Fiji, forest ramble in, 319
 Filberts, pruning, 67
 Finsbury Park, notes on, 316
 Firs, decay of Spruce, 57
 Fittonias, culture of, 536
 Flies, destroying, 150
 Flower bed of hardy plants, 571; and lobster salad, 386; planting for winter and spring, 394
 Flowering plants, arranging, 129
 Flowers—changeability of colours of, 105; cheap, 126; notes on colours of, 171; in autumn, 317; simple mixtures of, 451; economy with, 470; useful autumn, 518; of the past season, 568; colours of, 591; selection of plants to afford a supply of, 602
 Forests, influence of on climate, 158
 Forget-me-nots, notes on, 172
 Foxglove, salmon sport from, 79, 91
 Frant Cottagers' Association, 127
 Frost, severe in Scotland, 571
 Fruit—modes of packing, 40; packing in moss, 218; notes on in Sussex, 221; pruning trees in autumn, 231; gathering and storing, 233; judging at Edinburgh, 289; trees, planting, 290; scraps about, 427, 453; pruning and dressing trees, 462; hardy, 474; pruning and training trees, 493; scraps about, 519; growing on chalk soils, 525; planting trees, 533; summer and winter pruning, 566, 578, 581; at Edinburgh, cards for judging, 569

Fruit judging at Edinburgh, 318, 344, 368, 385; selections for amateurs, 358
 Fruit trees—pruning, 45, 91; good sorts for standard, 331; securing names of, 348; preparing ground for, 350; lifting and renovating, 352; importance of labelling, 380; pruning and training, palmette verriers, 542; growing for market, 559; borders for, 595
Fuchsia Riccartoni, 315
 Fulham Nurseries, sale of, 343
Funkia lancifolia albo-marginata, 45; *spathulata alba*, 57

GAILLARDIA PICTA LORENZIANA, 568

Gardeners' Royal Benevolent Institution, anniversary dinner, 10; fête for at Fhornham, 295
 Gardeners changing situations, 263
 Gardenias, pruning, and destroying insects on, 90; improving unhealthy, 415; culture of, 446; potting and pruning, 495
 Gardening amongst cottagers, 11; learning, 22, 139; past, present, and future, 517, 567
 Garden refuse, charred, 259
 Gardens in North Durham, 201
 Gentianias, species of, 15
 Gesnerias for summer and winter, 336
 Ghent, proposed Horticultural Congress at, 344
 Girtford Experimental Garden, 88
 Gladioli, good early, 45; at Kensington, Bono, Jas. McIntosh, Ala. and A. F. Barron, 129; good white varieties, 249; Colvilli albus, 385; growing prematurely, 580
 Glass copings for walls, 119
 Glass-wall protectors, references to, 558
 Glazing, Rendle's Acme system, 405
 Gloxinias, large, 46
 Godetia Duchess of Albany, 38; *Satin Rose*, 129
 Gooseberries, value of crops of, 224; for profit, 558; culture of market, 596
 Gooseberry bushes, pruning neglected, 187, 477, 527
 Grammatophyllum multiflorum, 82
 Grapes, ripening late, 242, 294; Foster's Seedling, 271; Gros Maroc, 275; exhibiting, 316; Alnwick Seedling not setting, 353; Alnwick Seedling at Chiswick, 360, 446, 472, 493; not setting, 403; early white varieties of, 391; Buckland Sweetwater, 412, 430, 448, 470; bees attacking, 430; Golden Queen, 448; keeping, 462; notes on varieties, 469; Muscats at Knowsley, 494; estimate of white, 498; vagaries of, 512; low night temperatures for, 518; for September, 528; Early White, 530; over-cropping, 536; for September, 547; Muscat of Alexandria and sand, 549; Duke of Buccleuch, 586; notes on varieties, 593; description of Barbarossa, treatment of Gros Maroc, 601; selection of, 609
 Green & Sons, Messrs., annual meeting, 128
 Greenhouse, management of, 318; its inmates, 403, 580; heating, 477; temperature for, 580
 Guavas, 162

HAILSTORM, DESTRUCTIVE, 104

Hampton Court, 242
 Hardy plants, selection of, 144, 325; a garden of, 326
 Harefield Grove, Uxbridge, 320
Harpalum rigidum, 227
 Harvest festival, church decoration for, 359
 Heaths for autumn and winter, 581
 Heating—Rippingille's stoves, 448
 Heckfield Place, 481
 Heliotropes, Bouquet Perfume and Madame P. Athles, 177; *White Lady*, 587
Heracleum giganteum, 10
 Herbaceous plants, selection of, 124, 279; renewing and increasing, 401
 Herbarium of plants, an old, 321
 Hinds, Mr. W., death of, 593

Hippophae rhamnoides, 353
 Hollyhock disease, 102
 Hong Kong, botany of, 154
 Hops, bad harvest of, 175
 Hop Plant, the, 488
 Horseradish, culture of, 544
 Horticultural (Royal) Society, arrangement with Commissioners, 33; Committees, 38, 81, 177, 183, 346, 453; Horticultural (Royal Caledonian) Society, results of International Show, 386; list of Committees, 574
Hoya carnosa, 235
 Humus, 472, 497, 520, 546; its properties and action summarised, 569
Hyacinthus candicans in pots, 99; culture of Roman, 353; for beds, 425
 Hybrids raised by Mr. J. Seden, 122
 Hyde Park, 202
 Hydrangeas with blue flowers, 243; Thomas Hogg, 476
Hypericum undulatum, 127

ICONOGRAPHY OF INDIAN

Azaleas, 320
 Impatiens Sultan, 75
 Indian Figs, 178
 Indian rubber plants, new species, of, 54
 Ingestre Hall, 367
 Insecticides, notes on, 523, 596
 Insects, prevalence of, 56
 Ivy, planting, 235; and cattle, 580
 JACOBÆA LILY CULTURE, 559
Jasminum gracillimum in winter, 591
 Judging at Edinburgh, 458

KALOSANTHES, MANAGEMENT

of, 114
 Kangaroo Vine, 511
 Keir, notes on, 550
 Kidney Beans, preserving, 306
 Kinver seed farms, 252
 Kitchen garden, seasonable work in, 42
 Knowfield Nurseries, 528

LABELS, LINCRUSTRA, 272; MR.

Hibberd's, 347
 Laburnums, seeds poisoning swans, 570; planting in meadow, 591
 Lachenalias, 528
 Laquer Tree of Japan, 316
 Ladybirds, migration of, 296
 Lælia harpophylla, 9; monophyllum, 295
 Lapagerias, propagating, 210; culture of, 494, 594
 Lastrea montana coronans, 129
 Lawn improving, 397; in winter, 591
 Leaves, skeletonising, 284
 Lettuces—Dick's Hardy Cos, 7; Green Unctuous and Paris Sugar, 39; Cooling's new Cos, 101; 249
 Libonia floribunda, 552; *L. penrhosiensis*, 594; culture of, 601
 Lilies, treatment after flowering, 148
 Lillium Thunbergianum cruentum, 38; *L. pardalinum*, 53; *L. giganteum*, raising from seed, 71; *L. auratum virginale*, 82; culture of, 128; *L. speciosum* var. *Melpomene*, 183; potting, 211; anatum in borders, 215; Parry's, 343
 Lime, quantity for light soil and vine borders, 305
 Linaria cymbalaria, 243; vulgaris var. *Peloria*, 543; *L. reticulata aurea purpurea*, 568
 Linum triginum culture, 572
 Liverpool Show, 132
 Llewelyn, death of Mr., 199
 Lobelia cardinalis, 174, 207
 Locusts, and cost of destroying in Cyprus, 453
 Lonicea grata, 10; sempervirens minor, 147
 London parks and gardens, 152
 Lucas, death of Dr., 104
 Luculia gratissima, 475; at Knowsley, 549
 Luton Show, 77
 Lygodium scandens, 523
 Lythrum salicaria, 105

MAGNESIA AS A MANURE, money value of, 225; phosphate of, manurial value of, 341
Magnolia Campbelli, 454
Malva moschata major alba, 11
Mandevilla suaveolens, 131
 Manetti stocks, preventing suckers from, 45
 Manure, the best, earth closets, 171; used at Longleat, 205; from earth closets, value of, 218; for Vines, 230; earth-closet, 244, 276; trials of "Crown," 381; Standen's for Roses, 883
 Manures, chemistry of, 298, 325
 Manuring, spring v. autumn, 590
 Marguerites, propagating, 384
 Market gardening and fruit-growing, 178
 Masdevallias—Shuttleworthli and triangularis, 31; *M. tovarensis*, 451
Maxillaria picta, 531; *M. nigrescens*, 592
 Mealy bug, destroying, 46; destroying on Vines, 114
 Measuring conical heaps, 21
 Melons, supporting on trellises, 10; not setting, 21; setting and management of, 43, 45; setting, effects of bottom heat, 55; canker in, 250; Stamford Pet, certificated, 346; Sir Garnet Wolseley, 408
 Mentmore, 478
 Meteorological Society, 476
 Mezeron, berries poisonous, 80
 Michaelmas Daisies, notes on, 357; at Tottenham, 408
 Mignonette, new varieties certificated, 39; culture in pots, 49
 Mildew on Peas, 348
 Milton Abbey, 87
 Mitchellia alba, 387
 Monotropa uniflora, 501
 Mormodes unicolor, 347
 Moss, fertilised, for plants, 320
 Musas, culture of in Fiji, 320
 Mushrooms in cucumber beds, 31; destroyed by fungus, 375; preparing manure for, gathering, 580; growing in sphagnum, 596
 Mushrooms for the million—inserting spawn, 50; soil for, 51; easing the beds, temperature, 97; effects of frost on, 98; covering the beds, 168; watering, salt for, cutting v. pulling, 169; retaining the stems, different grades and relative value of, 216; packing, 312
 "Musk Tree," 336
 Myrica Gale, 428
 Myrtles, culture of, 124

NARCISSUS ALBICANS, 501, 505
 Narcissuses for borders, 259
 Nectarines—good varieties, 278; Lord Napier, 291; Lord Napier for forcing, the good varieties, 327; estimate of varieties, 336; Lord Napier, failure of, 343; notes on varieties, 371
 Nepenthes Mastersiana, 274
 Nepenthes, culture of, cutting down, 303
 Neriums Sœur Agnes, Mons. Balaguer, and Madonni grandiflorum, 39
 Newcastle Horticultural Society's finances, 428
 Newington, death of Dr., 38
 Nitrate of soda, use of, 436
 Nitrates, production and loss of in soil, 41
 Nomenclature of garden plants, 477
 Norris Green, conservatory at, 475
 Nurseries, notes in London at Christmas, 592, 593
Nymphaea candidissima, 32

OAK, DWARF, 39

Odontoglossums—O. Alexandra, 55; notes on, 58; O. Rossii majus, 59; Pescatorei Veitchii, Cervantesii decorum, and Halli nigra, 107; notes on species, O. maculatum, 193; O. crispum vars. Dormanianum, and Wilsoni, Alexandra virginialis, 454; O. Halli, 546, 570
 Oenotheras, notes on, 101, 150
 Omphalodes verna, 29; O. Lucilia, 52
 Oncidiums, notes on, 587; O. Rogersii, 375; O. stelligerum, 82
 Onions, 251; maggot, preventing, 21

Oranges, culture of in Florida, 80; raising from seed, 574; grafting, 581
 Orchard house, planting, 187
 Orchids—in July, 35; hybrids flowering at Chelsea, 57; pruning, 104; in August, 134; in September, 248; peat for, 249; sale of Dr. Paterson's at Edinburgh, 272; liquid manure for, 321; in October, 341; at Kew, 344; notes on 509; Australian, 409; in America, 432, 407
Origanum Siphyleum, 488
Ornithogalum thyrsoides, 347
Osmunda japonica corymbifera, 38

PALMS—select and useful, 327;

number of flowers on, 574
 Pansies, striking cuttings of, 91; Lord Waverley, 38
Papaver umbrosum, 568
 Paraffin injurious in sewage, 383
 Parcels, revised rates by rail and post, 223
 Parsley difficulties, 525
 Peach Sea Eagle, 56; renovating trees, curing "yellows," 167; for succession, 210; trees, treatment of old, 240; Royal George, 259; lifting trees, 276, 319, 368; shallow v. deep borders for, 405; crop in Texas, 326; Hale's Early, 327; estimate of varieties, 335; The Dymond, 346, 428; for forcing and succession, 350; notes on varieties, 371; Dr. Hogg, 375; selection of, 602
 Peaches and Nectarines for succession, 65; notes on varieties, 384; cordon trees, 397
 Peach-wall protector, 495
 Pear-tree slug, 22; in New Zealand, 39
 Pears for walls and pyramids, stocks for, 337; heavy fruits of, 355; good late varieties, 396
 Peas, 424; weights of large, notes on continental varieties, 428, Soldat Laboureur and Marie Guise, 453; selection of, 488; weight of Pitmaston Duchess, 500; weights of, 549; Josephine de Malines, 566; Pitmaston Duchesse, weights of, 588; Prince Napoleon, 597
 Peas—Lye's Favorite, Turner's Emerald, Statagem, and Alfred the Great, 39; Culverwell's Giant Marrow, 57; trials and suggestions for at Chiswick, 74; varieties for continuous supply, 101; selection of, 144; Pride of the Market, 153; a cottager's new varieties, 170; Duke of Albany, 199; mildew on, 368, 406; General Garfield, 451; varieties of, 402
 Pelargoniums, cutting down, 92; essay on, 127; good double Zonals, 11; double Zonal, Charles Darwin, 175; Ivy-leaved, Rossini, 177; good new Zonals, 306; Albert Crousse (Ivy-leaved) and Aglaia (Zonal), 454; Madame Charles König, 547; double Zonals for winter, 571
 Pentstemons at Swanley, 127; P. virginale, 177; Mr. McFarlane, 347
 Perennials, hardy, for massing, nomenclature, 361
 Pereskias, culture and grafting, 536
 Pernettya mucronata, varieties, 347
 Perry Hill Nurseries, 392
 Pescatorea Vervaeii, 533
 Petunias at Perry Hill, 127; Mrs. Dunnett, 129; Carter's Empress, 249
 Phacelia campanulata, 82
 Phalanopsis violacea Schröderi, 129; P. violacea, 154; Esmeralda, 347; at Wyncote, 548
 Phosphate of magnesia, 290; manurial value of, 317, 361, 388; value of, 406, 427
 Phylloxera, extent of damage of, 105
 Phylloxerated districts v. plant importation, 400
 Picotees Mrs. Rudd and Sarah Elizabeth, 343
 Pigcons, canker in and remedy for, 400
 Pines, temperature for, 462; culture of, 588
 Pinks, some species of, 62; a plea for, 318; proposed show of, 371; Show, postponement of, 451
 Pinus Lambertiana, 559
 Pit for Gardenias, 536
 Plagiarius, 99, 150

PLANTS CERTIFICATED—

Acoelium roseum and *Album flore pleno*, 553; *Begonia gogoensis*, 82; *B. tuberosa*, A. F. Barron, 39; *Carnation Mary Morris*, 183; *Cattleya Whitei*, 82; *Com-parettia macropleuron*, 82; *C. falcata vera*, 82; *Chrysanthemum La Petite Marie*, 38; *Lord Wolseley*, *Crimson Klug*, M. Desbreaux, F. A. Davis, 454; *Duchess of Albany*, *Ceres*, 553; *Cosmos bipinnatus parviflorus*, 553; *Croton aureo-marginatus*, 38; *Dayspring*, 38; *Thomsoni*, 271; *Eyre*, 347; *Cupressus Lawsoniana erecta alba*, 347; *Cypripedium Arthuriannum*, 347; *Dahlia Gem*, 82; *Acquisition*, *Condor*, *Earl of Ravensworth*, *Evening Star*, *Gem Hope*, *Senator*, and *White Star*, 241; *John Henshaw*, *Christine*, *Ruby King*, 253; *Harrison Weir*, *Duchess of Albany*, *Nymph*, *Little Princess*, *Mabel*, *Little Duchess*, *White Star*, *Francis Fell*, *Cherry*, *Mrs. Burbridge*, *Mrs. Goldring*, *Pantaloon*, *Marguerite*, *Tyro*, *Yellow Gem*, and *Constance*, 347; *Davallia tenuifolia*, 83; *Gladiolus*, *Ala*, A. F. Barron, *Bono*, *James McIntosh*, 129; *Goletha*, *Duchess of Albany*, 83; *G. Satin Rose*, 129; *Grammatophyllum multiflorum*, 82; *Lastrea montana coronans*, 129; *Lathyrus Bronze Prince*, 129; *Lilium Thunbergianum eructum*, 38; *L. auratum virgiale*, 82; *L. speciosum*, var. *Melpomene*, 183; *Morodes unicolor*, 347; *Odonoglossum Alexandræ virgiale*, 454; *O. crispum*, *Dormannianum*, 454; *Oncidium stelligerum*, 82; *Ornithogalum thyrsoides*, 347; *Osmunda japonica corymbifera*, 38; *Pansy Lord Waverley*, 38; *Pelargonium Aglaia*, *Albert Crouse*, 454; *Pentstemon Mr. McFarlane*, 347; *Pernettya mucronata* varieties, 347; *Pescatorei Vervaei*, 553; *Petunia Mrs. Dunnett*, 129; *Phacelia campanulata*, 82; *Phalanopsis Esmeralda*, 347; *Pleopeltis fossa*, 38; *Renanthera matutina*, 82; *Rhododendron balsamiflorum album* and *nureum*, 38; *Sir Beauchamp Seymour*, 347; *Sir Garnet Wolseley*, 347; *Rose Duchess of Connaught*, 38; *Earl of Pembroke*, 347; *Salvia Hoveyi*, 454; *Scelopendrium vulgare crispum multifidum*, 129; *Tropaeolum Empress of India*, 82; *Tydaea Robert le Diable*, 38; *Vanda Hookeri*, 255.

Plants, choice herbaceous, 14; selection of tall perennial, 148; good for borders, 162; hardy, flowering in August, 226; in rooms, 259; for winter flowering, 289; for moist positions, 311; acclimatising in Sicily, 385; culture of hardy, 453; renewing, 455; nomenclature of, 493; in late varieties, 499; Mr. Garrett's paper on winter-flowering, 526, 545; notes on decorative, 542; notes on watering, liquid manure for, 576; selection of useful flowering, 602.

Pleiones, notes on, 321. *Pleopeltis fossa*, 38. *Plumbago capensis*, 331. *Plums* drying, leaves silvery, 22; for exhibition, 306; culture of and varieties, 426; a double crop of, 427, 453; for market, 511; useful varieties of, 519. *Polygala chamaebuxus*, 49. *Polypodium vulgare cornubiense* *Fowleri*, *erispum multifidum*, 129. *Pomegranates* in London, 343. *Poplars*, Canadian, in Belgium, 222.

Potatoes, late varieties of, 7; manuring, 12, 58; large crop of and manure used for, 77; cheap in London, *White Elephant*, 105; a good crop of, 125; early, 128; the *Manster* experiments with, 143; *Fox's* Early, 150; raising from seed, 193; culture of sound, 229; *White Elephant*, heavy crop of, 223; wintering, 259; *White Beauty of Hebron*, 274, 295; *International Show*, 289; exhibition of seedlings at Northampton, 292; early for market, 331; produce of *Magnum Bonum*, 334; twelve good varieties of, 331; notes on crops in Ireland, 407; productive, 499; sowing in autumn, 411; profitable, 423; forcing, 434; planting in autumn, 435; autumn v. spring planting, 497; American crop, 501.

Potatoes and Peas, 334.

Potato starch, American production of, 519.

Potting plants, 330; soils and manure for, 545.

Poultry—cross-bred for table, 48; in confinement profitable, unhealthy chickens, 94; early chicken shows, 118; fattening fowls, 141, 165; fraud at the Warwick Show, fowl coops, 142; crooked tails, Hertford Show, 161; notes, *White Leghorns*, 190; fattening for table, funnel-feeding, 214; late showing, 238, 242; *Carrier Pigeons*, 252; notes, crossing Game fowls, *Peacock* moulting, 283; judging at shows, 309; shows and entry fees, 334; at the Dairy Show, 355; the Crystal Palace schedule, *Poultry Club* meeting, 356; productivity of hens, "Practical Poultry Breeder and Keeper," 373; *Bantam* notes, 399; at Wolverhampton Show, 400; spoiling the Dorking, 413, 438, 468; new Standard of Excellence, 418, 439; *White Dorkings*, 457; notes on varieties, 491; notes at the Birmingham Show, 514; *Club Annual Report*, 492; *Club Meeting* at Birmingham, disqualification case, chicken vaccination, 540; Sunday shows, 561; thermodynamic incubator, ovifer, egg-protector, sales at Birmingham, 562; choosing a Dorking Cock, 583; *Poultry Club Meeting*, withholding prizes at Dorking, Watford Show, 584; Mr. Cook's poultry-yard, 603.

Preseot, Cucumber and plant-culture at, 147.

Primulas, old plants, grubs attacking, 91; at Swanley, 47; at Perry Hill and Reading, 593. *Pritchardia nobilis*, 408. Progress, reporting, 585. Propagating bedding plants, 219. Pyrethrums, double, 264; uliginosum, 319.

QUASSIA WATER, preparing, 45. Quintine, Columbian, 391.

RABBIT WARREN, STOCKING, 23.

Railway gardening, 452. Rainfall, extraordinary, 498. *Ramondia pyrenalea*, 13. *Risonowia ornata*, 178. Raspberries, summer-thinning, 114; canes dying, 133; culture, 274, 333; autumn-bearing, 303; in America, 405. Rats, trap for, 437. Regent's Park, 228. *Renanthera matutina*, 82. Review of book, "Report on Experiments in the Cultivation of Potatoes," 135. *Rhododendrons*, balsamiflorum *nureum* and *album*, 38; balsamiflorum *rubrum*, 82; double hybrids, 102; hirsutum, 179; Sir B. Seymour and Sir G. Wolseley, 347.

Rhubarb, Stott's *Monarch*, 42; forcing, 41; waste of, uses, 221. *Rhynchospermum jasmimoides*, culture of, 139. *Ribes opulifolium*, 123. Rice, paper, 179. *Richardia aethiopica*, forcing, 394. Ring loves, 23. Rippling's stoves, 443. Rockery, making under glass, 415; in autumn, 471. Root-pruning, 278.

Roses—proliferous, 5; among them at South Kensington, 25; *Maréchal Niel*, origin of, 32; *Brunonii*, 33; best in the Show, 35; *Duchess of Connaught*, 38; at New Orleans, 57; the "Queen of Flowers," origin of name, 67; conditions of proposed election, 73; at Waltham Cross, 81; at Wirral, 82; *Cytherea de Serenae* not expanding, 93; single for decoration, 104; notes on, 121; two-day shows, 123; a plea for standards, 170; the season of, a retrospect, 191; on own roots, striking cuttings, 197; standards, 202; best for forcing, 211; *Madame G. Luizet*, 217; remarkable tree at Whitby 224; *National Rose Society's* catalogue of, 248; *Madame Gabriel Luizet*, 250; notes on, 255; climbing varieties, 283; for buttonholes, 284, 305; at Canterbury, 288; at Chesham, 291; for towns, preparing soil for, 331; election of H.P. exhibition varieties, 317; the poll, 338; at autumn shows, 344; *Earl of Pembroke*, 347; election, poll of Teas, 353; at Great Doods and Holmfels, 352; at Woodhatch, 353; *National Show* fixtures for 1883, 363; notes on new, 380; English and American elections, 382; *Réve d'Or*, 391; spring v. autumn planting, 402; *Réve d'Or*, 409; for arches, 415; spring and autumn planting, 423, 443, 494; Hybrid Perpetuals in pots, planting in spring or autumn, 473; planting in heavy wet soil, 517; for exhibition, 536; from cuttings, experiments with, 544; synonymous varieties, 548; *National Society's* annual meeting and report, 555; decline and cancer of *Maréchal Niel*, 565; spring and autumn planting, 572; oldest tree, 580; Tea-scented varieties for beds, 602.

Rose shows—Alexandra Palace, 26; Birmingham, 73; Brookham, 40; Canterbury, 29; Cardiff, 54; Christleton, 56; Crystal Palace, 5; *Darlington*, 75; Farnham, 15; Helensburgh, 88; Hereford, 8; Hitchin, 17; Leek, 79; Maidstone, 16; Manchester, 52; Mansion House, 6; *National (Bath)*, 11; *National (London)*, 3; Oxford, 31; Reigate, 16; Sutton, 35; Wirral, 61.

Roup, 284.

Royal Horticultural Society, Committee Meeting, 254.

Rudbeckias—*R. californica*, 390.

SADLER, DEATH OF MR., 548. *Salvia farinosa*, 127; *S. tricolor*, 153. *S. Heeri*, 343; at Kew, 354. Sand for propagating, 411. *Sanguinarin canadensis*, 16. Savoy, Sutton's Green-curler, 525.

Scabiosa caucasica, 241. *Schizanthus*, sowing, 572. *Schizostylis eocinea*, 385. Seakale-box, 511; forcing, 581. Seeds, collections and selections of, 173; prices of selections and collections, 219; purchasers' and vendors' selections of, 515. *Senecio japonicus*, 37; *S. pulcher*, culture of, 133. *Serieographia Ghiesbreghtiana* in vinery, 543. Sewage, petroleum in—a caution, 383. Shallot, Sutton's Giant, 429.

Shallots at Chiswick, 39. Shelter for Currants, 235. Showing, perplexities of, 223. Shows—Agricultural Hall Improvement, 43; Aylesbury Vegetable, 391; Barnard Castle, 193; Bath Floral Fête, 423; Botanical (Royal) Society's, 18; Bracebridge, 199; Brighton Autumn, 276; Croydon, 14; Crystal Palace Fruit, 251; Hindsworth, 218; Harpenden, 220; Hawkhurst, 69; Manchester Gooseberry (National), 141; *National Carnation and Picotee*, 85; Newcastle, 107; Newport, 121; Northampton, 291; Northenden Floral Society's, 123; Preston, 241; Reading, 200; Royal Caledonian Society's International at Edinburgh, 236; Sandy, 294; South Wales Horticultural, 296; Shrewsbury, 189; Sunderland, 194; Smithfield Club, 539; Taunton Deane, 155; Tooting Horticultural Society, 31; Tredegar, 516; Trowbridge, 191; Tunbridge Wells, 30; West Kent, 34; West of Scotland Society's Pansy, 93; Wimbledon, 33.

Shrubbery, effective plants in, 17. Shrubs, comparative hardiness of, 81; choice flowering, 103; planting, 287, 523.

Silkworms and silkworm rearing, 63, 123, 182, 233, 293, 343, 411, 499, 507; *Attacus Pernyi*, 461; *Emperor Moth*, 507. Snowdrops, culture of in Lincolnshire, 76; in pots, 601. Soil, mites in, 67; influence of on maturing crops, 103; for potting, 323; temperatures of October to March, 423.

Sonerilas, new, 498. Soot, constituents of, 67. *Soya hispida*, 250. *Spurmanna africana*, standards of, 429.

Special prizes for Cucumbers and Melons, 128.

Spergula filifera aurea, 352.

Spigelia marilandica, 8.

Spiraea japonica, disqualifying, 21; *S. palmata*, hardy, 45; *S. Ulmaria flore-pleno*, 51; *S. japonica*, 74; *S. Lindleyana*, 80.

Spray-diffuser, 559.

Spruce Firs dying, 233.

Spruce-gall aphid, 278.

Stakes, wire, for flowers, 34.

Standen's manure, 197, 349.

Storm, effects of, 385; in Ireland, 319.

Strawberries—methods of culture, mistakes, 1; raising plants, 2, 6; modes of culture, mistakes, 28; *Forman's Excelsior*, 53; planting in various soils, 57; preventing beetles eating, 102; notes on, 126, 455; *Helena Gloede*, 138; culture of *Hautbois*, 188; and beetles, 217; in pots, autumn treatment, 314; notes on Alpines, 341; Duke of Edinburgh, 336, 424; wintering in pots, 428; James Vick, 452; the best variety, 455; in December, 549; relative value of, 590.

St. Vincent's, Grantham, 157.

Sunflower, the, 273; effective varieties of, 295; uses of, 483.

Sussex manure and crop experiments, review of, 110.

Sweet Pea Bronze Prince, 129.

TENTHREDO ADUMBRATA, 22.

Thuias dying, 67.

Thunbergia Harrisii, 396.

Thwaites, death of Dr., 334.

"Tillage of the Poor," a sermon, 33.

Tinnæa aethiopica, 570.

Tobacco planters, distressed, 19.

Todeas, large specimens of, 141.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Tomatoes, Dedham Favourite and Criterion, 35; stopping, 64, 66; at Kensington, 127; Abundance, 129; for winter and spring, 250; notes on, the Orangedfield, 255; trap for insects, 344; in frames, 536; General Garfield, 543.

Trees, a year's planting of, 295; planting, 287; extensive planting of in Scotland, 329. Trenching, error in, 1. *Trichomanes radicans* from spores, 383. *Trillium*, notes on species, 527. *Tropaeolum Empress of India*, 82; *Bedfont Rival*, 177, 393. *Tuberoses*, culture of, 451. Tulips for beds, 425. Turnips, trial of early, 6; preventing running, 69; and frost, 40. Tydaea Robert le Diable, 38; selection from Chiswick trials, 178; *Madame Heine*, 525.

VANDA HOOKERI, 255. Vegetable Marrow, Muir's, 64. protecting, 363.

Vegetables for market at Reading, 39; sowing late crops, 78; Mr. Laxton's novelties, 452; select varieties, 539.

Vegetation in Ceylon and India, 159.

Verbena Hampton Court *Crimson*, 79; *Phlox*, August Reuz, and *Kentish Beauty*, 177; from seed, 563.

Veronica spicata, 159.

Victoria Park, 228.

Vinery, wiring, 211; amateur's, 361.

Vines—best manure for, 8; at Longleat, disbudding and stopping, thinning, shanking, 23, 101, 129, 319; mildew, keeping the fruit, 27; notes on management of, 41; test for cropping, 67; review of Mr. Taylor's notes on, 72; lifting, 89; why, when, and how to manure, 95; alleged plagiarism, 101; manure for, 129; manuring, urine and sewage for, 151; Royal Vineyard a retarding stock, 157; applying liquid manure to, 187; culture, 207; evidence of good border, 211; watering, 234; renovating old, 321; protecting borders, pruning, removing laterals from, 331; planting outside, 332; recipe for winter dressing and extirpating mealy bug, 365; at Longford Castle, 372, 386; in pots, shifting and planting out, 379; "ringing," 385; training, mildew, 395; in France, phylloxera effects of and eradication, 400; planting, pruning, 488; starting, 508; dressing with tar, 547; inarching, reference to, 559; silica and iron for, 594.

Viola, Carter's Perpetual Blue, 593.

Violets—Devoniansis, 153, 176; in frames, select varieties, 224; *Patrie*, 289; *Belle de Chateaufort* and *Queen de France*, 306; successful culture in frames, 380; notes on, 545.

Virginian Stock Fairy Queen, 80.

Viscarias for pots, 210.

WALKS, MAKING GAS-TARRED, 451.

Walls, glass copings for, 119.

Wasps, notes on queens,

WOODCUTS.

	PAGE		PAGE		PAGE
<i>Æcidium berberidis</i>	369	<i>Eryngium eburneum</i>	115	<i>Odontoglossum cirrhosum</i>	197
<i>Æschynanthus speciosus</i>	345	<i>Eutoca viscida</i>	145	„ <i>maulatum</i>	193
Apple—Pott's Seedling	425	<i>Exacum macranthum</i>	221	„ <i>Pesatorci Veitchii</i>	103
„ The Domino	449	<i>Fitzroya patagonica</i>	457	„ <i>Rossi</i> var.	59
„ The Washington	471	<i>Fuukia lanceifolia albo-marginata</i>	45	<i>Oneidiums tigrinum and zebrinum</i>	587
<i>Arancaria Cookii</i> , cone of	457	Glazing, Rendle's Aeme System	405	<i>Ovifer</i> , an	562
<i>Arum crinitum</i> and <i>italicum</i>	306	<i>Harpalium rigidum</i>	227	Peach Wall Protector	495
„ <i>Dracunculus</i>	307	Heckfield Place	433	Pear—Josephine de Malines	565
<i>Astrocyum mexicanum</i> , spathe and spadix ..	573	Hives, floorboards	41	„ Prince Napoleon	597
<i>Attacus Atlas</i>	123	„ Neighbour's Prize Observatory	209	<i>Phalenopsis violacea</i>	156
„ <i>Mylitta</i> , moth and cocoon	63	„ sections of	487	<i>Ramondia pyrenaica</i>	13
„ <i>Pernyi</i> , moth and cocoon	461	„ Straw Stewarton	600	<i>Rhododendron balsamiflorum album</i>	83
„ <i>Polyphemus</i> , moth and caterpillar	182	<i>Impatiens Sultani</i>	75	„ <i>hirsutum</i>	179
„ Yama Mai, caterpillars	349	Ingestre Hall	366	Rockery, plan of	416
„ „ caterpillar and cocoon	293	Keir House	551	Rose, a prolificus	5
„ „ caterpillar and moth	254	<i>Laehenalias pendula</i> , <i>Nelsouii</i> , and <i>luteola</i>	529	<i>Rudbeckia californica</i>	299
Beckett House	521	<i>Laelia harpophylla</i>	9	<i>Saturnia Carpinii</i>	507
Bees—queen, worker, and drone	535	<i>Linaria vulgaris</i> var. <i>Peloria</i>	543	<i>Saxegothaea conspicua</i>	457
<i>Bomarea conferta</i>	323	<i>Mandevilla suaveolens</i>	131	<i>Seabiosa caucasica</i>	241
<i>Chermes abietis</i>	278	<i>Masdevallia Shuttleworthii</i> and <i>triangularis</i>	31	Seakale Box	511
<i>Chrysanthemum maximum</i>	251	Mentmore	481	<i>Senecio japonicus</i>	37
„ a specimen	595	Mushrooms—Buttons, Cups, and Broilers	217	Strawberry Duke of Edinburgh	396
<i>Cosmos bipinnatus</i>	265	„ Packing for Market	313	„ Forman's Excelsior	53
„ <i>diversifolius</i> var. <i>atro-sanguineus</i>	381	„ Pulling and Cutting	169	<i>Tenthredo adumbrata</i> , perfect insect and larva ..	22
Culzean Castle	389	<i>Narcissus albicans</i>	505	Traps for rats	437
Cunninghamia sinensis	554	<i>Nepenthes Mastersiana</i>	275	Vase, ornamental	339
Currant, Black Champion	203	<i>Odontoglossum Alexandræ</i>	55	<i>Veronica spicata</i>	159
<i>Dendrobium superbiens</i>	410	„ <i>Cervantesi decorum</i> and <i>Halli</i>		Vinery for amateurs	361
<i>Erica gracilis autumnalis</i>	581	„ <i>nigrum</i>	167	Wheat Mildew	370
				Wilson's, Mr. G. F., garden	589



6th	TH	Canterbury, Brockham, and Oxford Rose Shows.
7th	F	Tunbridge Wells, Sutton, and Twickenham Shows.
8th	S	Alexandra Palace Rose Show.
9th	SUN	5TH SUNDAY AFTER TRINITY.
10th	M	Beeston Show. [11 A.M. Christleton Rose Show.
11th	TU	Royal Horticultural Society, Fruit and Floral Committees at
12th	W	Cardiff, Ealing, and Ipswich Shows.

STRAWBERRIES—MODES OF CULTURE—MISTAKES.

MUCH has been written from time to time on the cultivation of this wholesome, delicious, and important fruit; and much more will have to be written before everybody is satisfied, and before each would-be cultivator knows the precise mode to adopt in planting and management for producing the finest possible crops. New cultivators are ever arising who have not of necessity the benefit of years of experience to guide them, and who are not infrequently bewildered rather than instructed by the differing practices that are detailed by a multitude of counsellors in the gardening press. Many cultivators have recommended the methods that have proved sound in their own practice, but have not been sufficiently explicit in describing the surrounding circumstances, simple, perhaps, yet all-important, that have contributed powerfully to the results that have been achieved; hence the methods, however good in themselves, may not be the best for all persons, soils, and districts.

There are few, if any, systems of Strawberry culture that have been recommended in the Journal during the past thirty years that I have not tried with the object of testing their merits, and most of them have been good, but not all good alike, as it is not possible they could be under the great influence that the soil and seasons exercise on this crop.

I have made mistakes in Strawberry culture, and seen mistakes made by others, and in all these instances it was thought the injunctions of authorities had been acted on; and so they had, but not intelligently. One instance will exemplify how necessary it is for writers to be explicit and readers attentive, so that they comprehend fully not only what a writer says in so many words, but what he intends to convey.

After spending twenty years "in the houses" it fell to my lot to have the charge of a garden where the cultivation of fruit and vegetables was of greater moment than growing plants. I was thus of necessity weak where I ought to have been strong, but trusted to industry and perseverance to carry me through. I found the Strawberry crop good without being great. It satisfied my employer, but did not satisfy me. In endeavouring to produce something startling in the way of Strawberries I worked as I never worked before nor since in preparing the grounds for a new plantation.

I read that strong and deep soil were necessary. Whatever differences were submitted as to the times and manner of planting, and also in respect of varieties, there was no difference on the question of soil. "Strawberries like heavy soil, and it should be trenched 2 feet deep," was the sum of what I read, search where I would for information. Now the soil of the

garden was neither strong nor deep. It had been tilled for half a century at least, but not deeper than a foot, and the surface soil was light. On digging deeper, however, it was found to almost approach to clay. What more natural than to conclude that nothing was needed but trenching? "Heavy soil trenched 2 feet deep" kept ringing in my ears, and strong arms and a will to work impelled me to improve on the 2-foot trenching by going down half a foot deeper. The ground, then, was trenched 2½ feet deep. I delved cheerfully, and my employer looked on admiringly. We both expected grand results, but both were bitterly disappointed. Only young men fresh from "the houses" will need to ask, "Why this failure?" Old hands have already anticipated it, yet for the sake of the young and inexperienced the nature of the error must be pointed out.

In all probability the ground had never been trenched before, and at least a foot of the soil brought to the surface had not been exposed to the air for a century—never since it was itself a portion of the surface, and had been covered deeper and deeper with increasing years. It was strong, adhesive, sterile, and in its sour inert state could neither grow Strawberries nor anything else. What ought to have been done as soon as the trenching was completed was to have trenched it over again; yet if any old garden labourer had suggested such a course no doubt he would in a moment of youthful ardour have been considered as belonging to the ancient order of antediluvians.

The Strawberries were planted, watered, mulched, but grow they would not, and did not; even weeds did not grow. Several of the plants died, others lingered, a few struggled as if determined to surmount the obstacles that ignorance had created. The result of three great efforts—the reading, and working, and tending—was a Strawberry bed patchy, miserable, and a disgrace to the garden. Yet it was produced in the orthodox style taught by books of "strong soil trenched 2 feet deep." This was dearly bought experience, but it proved most valuable in after years. Others can now have it cheaper, as this Journal only costs 3d., whereas spoiling that ground cost nearly £3.

I know well now what ought to have been done with that plot of ground, but there are others who do not know how to proceed in such a case. Instead of trenching 2½ feet deep and bringing the strong poor soil to the surface, it ought to have been dug about 15 inches deep, not more, mixing the 3 inches of heavy fresh soil with the foot that was light, and incorporating with the whole manure to improve its fertility. At the depth of 15 inches the soil—the subsoil, should have been well broken up and covered with a thick layer of manure or vegetable refuse, green or decayed, or both. Not half the time would have been spent that was wasted in trenching, while a ten times better crop of Strawberries would have followed. After the Strawberries the ground could have been turned over to a depth of say 20 inches, and the subsoil again broken; next another great crop of something taken; then, and not till then, could the trenching be safely done to the depth above indicated—2 feet. Heavy crops would have been had in the meantime that would have more than paid for the work of steady improvement, and in the end a splendid piece of land would have been produced. This narration of a serious error and how it might have been avoided may be useful to some who may be on the eve of a Strawberry career.

It is held strongly by some persons that Strawberries should never occupy ground for more than two years—that is to say,

that they should produce two crops and then be destroyed. Others say they may profitably remain on the ground for seven years, provided manure is added annually. Both systems may be right in certain soils and under judicious management, and it is a fact that both methods have been adopted with the best results. But it will never do to rely on the septennial system in light and rather dry soils, while it may be a costly mistake to rely on the biennial plan on cold strong lands. One such mistake may be mentioned. A garden which has been famed for its Strawberries for half a century, and the seven and even ten-year-old beds gave abundance for all comers, passed into the hands of a young gardener. Without thinking sufficiently he took runners after his first crop and destroyed most of the old beds. The result was, what was not known previously in the memory of man, a scarcity of Strawberries in that garden. By no attention that could be given could such bearing crops be produced the second as the third year, while the first year's crop was invariably poor. Let, therefore, there be no hasty judgment in determining the method to pursue, but consider well the nature of the soil and circumstances in each case, and act accordingly.

The lighter the soil is the deeper must it be for Strawberries, the firmer it must be made, and the less it must be dug between the plants. In some heavy soils Strawberries are much benefited by being forked amongst annually; in others that are very light, to dig amongst the plants at all is a mistake. The nature of the soil, therefore, must always be taken into account when preparing for the cultivation of the crop in question.

I have had to produce Strawberries in one of the driest localities in England, and in one of the wettest; in soil not far removed from a blowing sand, and in strong clays; and as a record of the systems pursued may be of some service I will endeavour to return to the subject in a future issue.—A NORTHERN GARDENER.

I NEVER experienced so much difficulty as last year in obtaining sufficient runners early in the season, and this was entirely due to drought. Had not the plantation been thoroughly soaked with water and at once mulched it would have been impossible to have obtained sufficient runners in time to make strong plants with bold well-ripened crowns, so desirable to yield a good crop of fruit in spring. Young plants planted especially for the purpose and the fruit kept off during the first season is by far the best way of securing abundance of clean early runners, and to rely for runners upon those plants that have to carry a crop of fruit is a great mistake. Some cultivators place out forced plants, and rely upon them for runners, and even assert the crop of fruit from them the following season is both heavier and finer in size than young plants will produce. They even go further, and contend the planting of those that have been forced saves a year. To accomplish this ground must be purposely reserved for them, and thus some other valuable crop be lost. My experience is that when forced plants have been exhausted by bearing, even if they have been kept free from red spider, they cannot compete with young vigorous plants.

When the system of making a plantation annually is practised there is no occasion for ground to be retained purposely for them, as any early or second-early crop can be cleared off before it is necessary to plant the Strawberries. I have taken from a plot of ground a crop of early Potatoes, planted 3 feet apart, and then a crop of Osborn's Broccoli planted between every two rows of Potatoes, the Strawberries being planted between the rows of Broccoli after the Potatoes were dug. The leaves of the Broccoli were shortened back slightly to prevent them injuring the Strawberries. Although the Broccoli crop was good and proved no detriment to the Strawberries, I shall not repeat the operation, because they grow rather too large. After the early crop, whether Potatoes or Peas, another crop may be taken from between the Strawberries of either dwarf Savoy, Coleworts, Lettuce, Endive, or Turnips for drawing late. Any of these can be planted when ready after the ground is clear, and the spaces left between them for the Strawberry plants. My practice is to make a new plantation every year, and to destroy one annually as soon as the fruit is gathered, relying for the following year's supply of fruit upon

those that have produced runners for pots. The ground from which the fruiting plants are cleared is afterwards planted with late Broccoli. The plants for this purpose are either pricked out in beds sufficiently far apart, or planted twice as thick as required between rows of Potatoes, lifting with a ball of earth every alternate plant.

The Strawberry ground is not dug, a hole merely being made with a spade and the Broccoli carefully placed in, a good supply of water being given if the weather be dry, the ground afterwards being loosened with a fork. These plants generally do not attain a large size, but are sturdy with hard stems, and in consequence resist severe weather much better than those of the same varieties planted earlier and on lighter ground. Early in spring the ground is manured and forked in amongst the plants, or failing this have one or two soakings of liquid manure. Such close cropping need not be followed where ground is plentiful, but no doubt many besides myself are compelled to make the most of the ground at their disposal.

As soon as the Strawberry runners are layered for the spring supply in the sized pots in which they are to fruit, those for planting should be commenced at once if any runners remain. They are layered in 5-inch pots, which we prefer to those of a smaller size. If the ground is not ready they do not dry so quickly, and are not so liable to become checked as those in small pots. The earlier they can be planted out the better, so that they become established before winter. When layered and planted out early they develop into strong fruiting plants, and are capable of carrying a heavy crop of fine fruit should it be desired.—W. BARDNEY.

TWO CROPS OF CANTERBURY BELLS.

ARE there any plants that produce a finer effect in borders during June and July than well-grown examples of Canterbury Bells? Are there any plants grown in pots more imposingly beautiful than these are for arranging in verandahs or in conservatories? If so, it would be interesting to know what they are. Canterbury Bells are no doubt beautiful enough, some may admit, but their attractiveness is of too short duration to give satisfaction. It is true that the plants, as they are generally grown, are transient, but nothing is more easy than to extend their beauty just as long again as is usual; or, in other words, to produce two crops of flowers instead of one. For the last three weeks Canterbury Bells have contributed more than any other flower to the attractiveness of my garden, and the blue, white, and pink pyramids have been greatly admired. The flowers have now faded, but in another week the plants will be more densely clothed than ever with their grand bell-shaped blooms.

It is not the mere flowering that exhausts the plants, but the formation and maturation of seeds. If the faded flowers are promptly removed and the formation of seed pods prevented flowers will immediately form in the axils of the leaves in far greater numbers than before, and the plants will once again render the borders gay. It will be of great assistance to give the plants a heavy watering with liquid manure, as this will accelerate the growth of the second crop of flowers and increase their size. In order to have the finest plants—pyramids 3 to 4 feet high and 2 feet in diameter at the base—they must be raised early. My seedlings are ready for transplanting; but good plants may be had by sowing now, at once, in pots or boxes covered with squares of glass to expedite germination and encourage early growth, subsequently transplanting in rich soil, or in pots to be plunged in ashes, and the plants to be treated as if they were Strawberries prepared for forcing.

All the varieties are beautiful, the calycanthema forms—those with coloured calyxes—being more lasting than the others, and generally preferable for cultivation in pots for the conservatory or verandahs. They may be flowered in pots varying in size from 7 to 12 inches in diameter according to the positions the plants are to occupy.

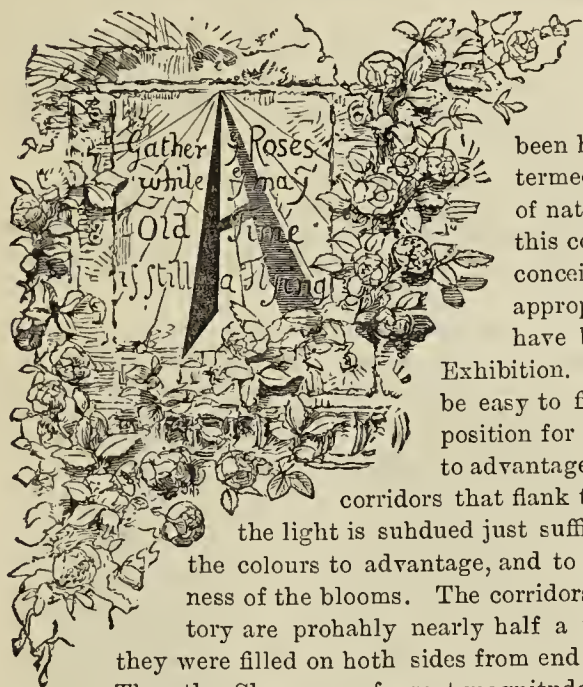
Every flower border should contain a number of these grand Campanulas. They are as easily raised as Cabbages, and decidedly amongst the most handsome of plants, hardy or tender, during their period of beauty—June and July.

Well-grown Canterbury Bells ought to be grown in hundreds in the London parks, and the public would have something to see that would command admiration. If planted thinly in beds intended for subtropical plants they would not materially interfere with the planting of the latter, while the beds would have a vastly different appearance from what they have now. In order to show

the effects of removing the faded flowers I send two sprays—one with the second crop of flowers advancing, the other with large seed pods and no flowers.—A SUBURBANIST.

[The sprays confirm all that our correspondent has stated. A spray that had a terminal flower removed is producing eight flowers from the axils of the leaves as a second crop, while where the seed pods are permitted there are no signs of further flowers. We have long adopted the practice described with the same results as recorded.]

THE NATIONAL ROSE SOCIETY. ROYAL HORTICULTURAL SOCIETY.—JULY 4TH.



At last the chief Exhibition of the above Society has been held at what may be termed the headquarters of national horticulture in this country, and it is not conceivable that a more appropriate place could have been found for the Exhibition. Neither would it be easy to find a more suitable position for showing the blooms to advantage than in the lengthy corridors that flank the conservatory, as the light is subdued just sufficiently to bring out the colours to advantage, and to maintain the freshness of the blooms. The corridors with the conservatory are probably nearly half a mile in length, and they were filled on both sides from end to end with Roses. Thus the Show was of great magnitude, and on the whole the blooms were of great excellence. Some were small, a few rough, and a few weather-worn, but bright, fresh, and beautiful examples preponderated, and the Show was a success. The great disposition to render it what it was is apparent by the great number of entries—nearly or quite five hundred; but although it was not possible for all to be represented, still the competition was good in most classes, and in some severe. Mr. B. R. Cant was the victor of the day, as he not only secured the challenge trophy with his grand premier collection of seventy-two blooms, but also the silver medal for the best Hybrid Perpetual Rose in the Show with Madame Gabriel Luizet, a fresh and beautiful bloom; and a similar award for the best Tea Rose with Souvenir d'Elise, the finest and most solid example that has perhaps ever been staged. The silver medal for the best Noisette Rose was awarded to Mr. J. Walker, with Triomphe de Rennes. Others, however, must criticise at a future time, as we can do little more at present than give characteristics of the stands, with the leading prizewinning varieties and the awards of the Judges.

NURSERYMEN'S CLASSES.

The principal class was that for seventy-two single trusses, in which some very handsome blooms were staged. Mr. B. R. Cant, Colchester, well won the chief honours (the Challenge Trophy and first prize) with fresh bright blooms of good substance. The varieties represented were the following:—Prince Arthur, John Hopper, Star of Waltham, La France, Sultan of Zanzibar, Emily Laxton, Victor Verdier, Mdlle. Bonnaire, Pierre Carot, Madame Eugénie Verdier, Madame Victor Verdier, Marquise de Castellane, Mrs. Baker, Moiré, Fisher Holmes, Mons. Noman, Penelope Mayo, Devoniensis, Louis Van Houtte, Marguerite de St. Amand, Sénateur Vaisse, Edouard Morren, Le Havre, Hippolyte Jamain, Camille Bernardin, Princess Beatrice, John S. Mill, Gloire de Vitry, A. K. Williams, Clotilde Rolland, Mons. E. Y. Teas, Madame Caroline Kuster, Ville de Lyon, General Jacqueminot, Madame F. Jamain, Souvenir de Mons. Boll, Ruhens, Marie Baumann, Madame Marie Finger, Marie Rady, Louise Peyronny, Antoine Ducher, Souvenir d'un Ami, Madame Charles Wood, Madame Hippolyte Jamain, Duchess de Caylus, Countess of Rosebery, Xavier Olibo, François Michelin, Duke of Edinburgh, Marquis de Mortemart, Madame Clemence Joigneaux, Marie Van Houtte, Comtesse d'Oxford, Madame Lacharme, Duke of Teck, Madame Lambard, Madame Ducher, Capitaine Christy, Duke of Wellington, Maréchal Niel, Charles Lefebvre, Innocente Pirola, Exposition de Brie, Madame Gabriel Luizet, Etienne Levet, Egeria, Alfred Colomb, Baronne de Rothschild, Duke of Connaught, and Souvenir d'Elise of extraordinary quality.

Messrs. Cranston & Co., Hereford, were second with a handsome

collection, including substantially the same varieties as those at the Hereford Show reported on another page. Messrs. Paul & Son, Cheshunt, were third with fine blooms of similar varieties to those staged at the Crystal Palace. Messrs. Curtis, Sandford & Co., Torquay, were fourth with a strong collection.

For thirty-six trebles the competition was also good. Messrs. Paul and Son were easily first with very handsome blooms, the following varieties being grandly represented:—Marie Baumann, Etienne Levet, Prince Arthur, Duchesse de Morny, A. K. Williams, Star of Waltham, Alfred Colomb, Madame Gabriel Luizet, Marie Finger, Marie Rady, Mons. E. Y. Teas, Marquise de Gibot, and Dr. Andry. Mr. B. R. Cant was second with large and in some cases very handsome blooms, amongst the latter being Le Havre, Madame Gabriel Luizet, Etienne Levet, François Michelin, Alfred Colomb, and Souvenir d'Elise. Messrs. Cranston & Co. were third with blooms mostly of moderate size but superbly coloured, the finest being Le Havre, Beauty of Waltham, Marie Baumann, Sultan of Zanzibar, and Dr. Andry. Mr. C. Turner, Slough, was fourth with bright and neat blooms.

For twenty-four trebles Messrs. Curtis, Sandford & Co., won chief honours with a beautiful collection, the blooms being of good size, excellent colour, and regular in form. The varieties best represented were Général Jacqueminot, Duchesse de Vallombrosa, Camille Bernardin, Comtesse de Serenye, Sénateur Vaisse, Marie Baumann, Marie Rady, Lælia, Marie Verdier, A. K. Williams, Madame Gabriel Luizet, Magna Charta, Alfred Colomb, and Mons. E. Y. Teas. Mr. B. R. Cant was second with rather rougher blooms, La France, Ferdinand de Lesseps, Edouard Morren, Le Havre, and Marie Rady being the most notable. Messrs. Cranston & Co. were third, John Stuart Mill, Alfred Colomb, and A. K. Williams being the best blooms.

For eighteen Teas or Noisettes, distinct, the premier award was secured by Mr. G. Prince, Market Street, Oxford, with a magnificent collection, comprising handsome blooms of Alba Rosea, Amazone, Adam, Souvenir de Madame Pernet, Ruhens, Innocente Pirola, Anna Ollivier, Marcelin Rhoda, Mons. Furtado, Comtesse de Nadaillac, Maréchal Niel, Catherine Mermet, Jean Ducher, Souvenir d'un Ami, Devoniensis, Souvenir de Paul Neyron, Marie Van Houtte, and Souvenir d'Elise Vardon. The second place was secured by Messrs. James Mitchell & Sons, Uckfield, Sussex, with good blooms but mostly smaller than the other. Rubens, Jean Ducher, Souvenir d'Elise Vardon, and Comtesse Nadaillac were very fine. Mr. B. R. Cant was a close third, his stand including some very good blooms. Messrs. Paul & Son were fourth with an even collection. Five entries.

For forty-eight single trusses Mr. Frank Cant, Colchester, was deservedly awarded chief honours for extremely handsome blooms, amongst the best of which were Marie Baumann, Pitford, Catherine Mermet, Fisher Holmes, Souvenir d'Elise, A. K. Williams, Duke of Wellington, and Madame Crapelet. Mr. James Walters, Exeter, was a close second with a bright collection, though the blooms were mostly small. Messrs. G. Bunyard & Co., Maidstone, and Messrs. Davison and Co., Hereford, followed as third and fourth respectively. Nine collections were staged.

For eighteen triplets Messrs. J. Walters, Frank Cant, Davison and Co., and G. Cooling & Son, Bath, won the awards, all staging well. For twelve Teas or Noisettes Mr. J. Matlock, New Headington, Oxford, gained the chief award with neat blooms of Souvenir d'Elise, Catherine Mermet, Devoniensis, Niphotos, Triomphe de Rennes, Marie Van Houtte, and others. Mr. W. Farren, How House, Cambridge, was a close second; Messrs. G. Bunyard & Co., third; and R. Veitch & Sons, Exeter, fourth, in a competition of six. In the class for twenty-four single trusses Messrs. J. Laing & Co., Forest Hill; Kinmont & Kidd, Canterbury; and Walker of Thame were the prizetakers in the order named, the first-prize stand containing clean, fresh, and bright blooms.

AMATEURS' CLASSES.

The blooms in most of these classes were of very good quality, and perhaps might be considered rather better than those in the nurserymen's classes considered generally. For thirty-six blooms, single trusses, the first prize and challenge trophy were awarded to E. R. Whitwell, Esq., Barton Hall, near Darlington, with a very evenly matched stand of blooms, the boxes being painted light green; and instead of the usual covering of moss, which is too frequently of a rusty green, these were covered with purple black velvet. Roses evidently show to a better advantage in this way. This collection consisted of La France, fine; May Quennell, Eugène Verdier, Marie Baumann, Monsieur Noman, good; Ahel Grand, excellent; Lord Macaulay, Madame Lacharme, Sir Garnet Wolseley, Marguerite de St. Amand, Baronne de Rothschild, Marquise de Castellane, Duke of Teck, small but bright; Marquise de Gihot, Madame Prosper Langier, Xavier Olibo, Duke of Edinburgh, Mons. Gabriel Luizet, A. K. Williams, Marie Rady, François Michelin, Duke of Wellington, Annie Laxton, Comtesse de Serenye, John Hopper, Fisher Holmes, Le Havre, Duchesse de Vallombrosa, Dupuy Jamain, Prince Camille de Rohan, Madame Hippolyte Jamain, Dr. Andry, and Princess Mary of Cambridge. Mr. J. Brain, gardener to A. J. Waterlow, Esq., Great Doods, Reigate, was second, his best blooms being A. K. Williams, Le Havre, Eugène Fürst, John Stuart Mill, Comtesse de Choiseuil, Charles Lefebvre, and a curious mottled sport, probably a sport from Comtesse d'Oxford. Mr. C. Davis, The Grammar School,

Aynhoe, near Banbury, was placed third, A. K. Williams being here very conspicuous for its perfect form and colour; Marquise de Castellane, Beauty of Waltham, and Capitaine Christy being especially good. Mr. W. Harrington, Corbets Tey, Romford, was fourth with a stand of well-built flowers. There were ten competitors in this class, and all of them very creditable.

For twenty-four single trusses there were twelve exhibitors, first honours falling to J. B. Haywood, Esq., with a grand box of flowers consisting of Madame Gabriel Luizet, very fine; Marie Rady, good; La France, Comtesse d'Oxford, Marie Baumann, exquisite; Baronne de Rothschild, Dupuy Jamain, and A. K. Williams, splendid; Alfred Colomb, Mons. E. Y. Teas, Mrs. Laxton, François Michelin, Annie Wood, John Stuart Mill, Madame Lacharme, Etienne Levet, Duke of Edinburgh, Duchess of Bedford, Capitaine Christy, Comtesse de Serenye, Louis Van Houtte, Cheshunt Hybrid, Beauty of Waltham, and Antoine Ducher. Second honours went to Miss Penrice, Wilton House, Norwich; third, Mr. C. Davis; and fourth to Mr. Joseph Davis, The Square, Wilton, Salisbury. Mr. E. R. Whitwell also exhibited a collection of twenty-four, which in our opinion ought to have been placed among the prizetakers in this class. All the other collections fell considerably below the standard of the first-prize collection, which was very fine.

For twelve distinct, three trusses of each, there were eight collections. Mr. G. P. Hawtreay, Aldin House, Surrey, was a good first with Mons. E. Y. Teas, good; Mad. Hippolyte Jamain, Mad. Lacharme, Thomas Mills, beautifully bright, and of splendid form; Marie Finger, Baronne de Rothschild, Avocat Duvivier, François Michelin, Alfred Colomb, and Charles Lefebvre. Mr. C. Davis was second; and Mr. C. E. Cuthill, Chapel Croft, near Dorking, third.

Of twelve Teas or Noisettes, distinct, single trusses, there were nine collections. Mr. J. Brown received the premier award with Marie Van Houtte, Caroline Kuster, Innocente Pirola, Niphetos, Devoniensis, Jean Ducher, Madame Willermoz, Souvenir de Paul Neyron, Anna Ollivier, Madame Welch, Alba Rosea, and Caroline Kuster. Mr. C. E. Cuthill was a very close second, and Mr. J. B. Hall third. A fine bloom of Anna Ollivier was exhibited in Mr. G. Sharp's stand. Mr. W. Harrington was also awarded equal third.

For twenty-four distinct, single trusses, second division, Mr. G. Baker was well ahead of the other twelve competitors, and worthily deserved the first position awarded. Annie Wood, Marie Baumann, Countess of Oxford, Etienne Levet, and Charles Lefebvre were superb. His other blooms consisted of Alfred Colomb, Charles Darwin, Madame Lacharme, Dupuy Jamain, Capitaine Christy, Magna Charta, Fisher Holmes, Baronne de Rothschild, Mrs. Laxton, Marquise de Castellane, Comtesse de Choiseuil, Duchesse de Morny, Louis Van Houtte, Madame Gabriel Luizet, Boadicea, Camille Bernardin, John Stuart Mill, and Pride of Waltham. The Rev. H. A. Berners, Harkstead Rectory, Ipswich, was second; Mr. Alfred Evans, Marston, Oxford, third; and the Rev. J. H. Pemberton, Havering-atte-Bower, Romford, fourth.

Fifteen collections of eighteen varieties were staged in Class 14, the first prize being a piece of plate, valued four guineas, which was awarded to Mr. Alfred Slaughter, Jarvis Villa, Steyning. Alfred Colomb, Marie Baumann, A. K. Williams, Reynolds Hole, Madame Lambard, Mons. E. Y. Teas were magnificent blooms in this collection. The Rev. E. L. Fellowes was placed second, Mr. Alfred Evans third, and the Rev. J. H. Pemberton fourth.

Of nine Teas or Noisettes there were eleven collections. Mr. G. Baker, Holmfels, Reigate, first with Anna Ollivier, Jean Ducher, Perle des Jardins, Madame Lambard, Catherine Mermet, Alba Rosea, Souvenir d'un Ami, and Devoniensis. The Rev. H. B. Biron is a very neat second. A magnificent bloom of Jean Ducher is here exhibited. Mr. A. Slaughter third, and Mr. J. Wakeley, Rainham, fourth.

In division E. for twelve single trusses, Mr. H. Harris, gardener to E. M. Betham, Esq., Denne Park, Horsham, was first with excellent blooms, having Mons. E. Y. Teas, Alfred Colomb, Etienne Levet, and Baronne de Rothschild, very fine. Mr. Wakeley was a close second; Mr. J. Burton, Sawtry, Peterborough, third; and the Rev. F. P. Roberts, The Rectory, Scole, fourth. Eight entries. For nine single trusses Mr. G. Mount, Harbledon, Canterbury; Mr. E. Wilkins, Lyndhurst, Sutton, Surrey; Rev. A. Foster-Melliard, Tostock Rectory, Bury St. Edmunds; and the Rev. Alan Cheales, Brockham Vicarage, Surrey, were the prizetakers in that order; all showing moderately good examples. In the next class, for six single trusses, F. Burnside, Esq., Farningham, Kent; E. Mawley, Esq., Lucknow House, Croydon; Mr. J. Burrell, Heighington, Darlington; and Mr. W. Narroway, Headington Quarry, Oxford, secured the leading honours.

For six Teas or Noisettes Mr. G. Mount, Harbledon, Canterbury, was first with fine blooms of Souvenir de Paul Neyron, Jean Ducher, Marie Van Houtte, and Catherine Mermet. The Rev. F. Page Roberts, The Rectory, Scole, Norfolk, was second; Mr. W. H. Wakeley, third; and E. Mawley, Esq., fourth.

OPEN CLASSES.

For a collection of twelve new Roses not in commerce previous to 1879, Messrs. Paul & Son gained the leading prize with good blooms of George Moreau, Souvenir de Madame Alfred Vy, Edward André, R. N. G. Baker, Catherine Soupert, George Baker, Madame Isaac Pewrière, Ferdinand Chaffolte, Jules Finger, Rosieriste Jacobs, Countess of Rosebery, and Madame Ducher. Messrs. Curtis, Sandford and Co. were second with Mrs. Jowitt, Mons. Alfred Leveau, Lady

Sheffield, Alfred Dumesnil, Madame Julie Weidman, Masterpiece, Souvenir de Mons. Drouche, Rosieriste Jacobs, Mons. Thouvenel, Duke of Teck, Marguerite Manoin, and Comtesse de Camonde. Messrs. Cranston were third with the following in addition to several of the same varieties shown in the preceding:—Madame Montet, François Levet, Comte Horace de Choiseuil, Crown Prince, Pride of Waltham, and Jules Jergenson. Four entries.

For twelve blooms of any yellow Rose, Mr. G. Prince won first honours with Jean Ducher, bright, fresh, and clean; Mr. B. R. Cant followed with Marie Van Houtte, and Messrs. Curtis, Sandford and Co. with Maréchal Niel. Seven entries.

For twelve blooms of any white Rose Messrs. Cranston were first with Madame Lacharme, very even and of good form. Mr. B. R. Cant took the second prize with Devoniensis, very handsome. Messrs. J. Jefferies & Co., Cirencester, were third with Madame Lacharme. Ten competitors.

For twelve blooms of any crimson Rose, Mr. James Walters, Mount Radford Nursery, Exeter, was first with fine substantial blooms of Marie Baumann; Mr. B. R. Cant taking the second place with bright examples of A. K. Williams; Mr. John Sargant third with Alfred Colomb, bright and fresh; and Messrs. Curtis, Sandford & Co. were fourth with Marie Baumann, very good. Thirteen competitors.

For twelve trusses of any Rose Messrs. Paul & Son took the first place with even blooms of Capitaine Christy; Mr. G. Prince followed closely with Catherine Mermet of excellent quality, even and of good form; Mr. B. R. Cant was third with La France; and Messrs. Cranston & Co. were fourth with A. K. Williams, very bright. Seventeen entries.

EXTRA CLASSES.

Several classes were provided in this section. For twenty-four bunches of Tea Roses, three trusses each, open to ladies only, Mrs. H. B. Biron, Harbledon, won the chief prize, a piece of plate offered by Mr. Prince, with beautiful blooms of good substance, comprising the following varieties:—Caroline Kuster, Madame Camille, Madame Hippolyte Jamain, Perle des Jardins, Rubens, Comtesse Riza du Parc, Catherine Mermet, Marquise de Sanima, Devoniensis, Souvenir de Paul Neyron, Marie Van Houtte, Madame Lambard, Homère, Madame Maurin, Jean Pernet, Madame Welch, Jean Ducher, and Souvenir d'un Ami. Mrs. Maria Slaughter, Steyning, secured the second prize with a collection little inferior to the preceding. Miss A. F. Pemberton, Havering-atte-Bower, Romford, was a good third. Four entries.

For six blooms of suburban-grown Roses Mr. J. E. Coleby, Rosenhams, Wimbledon, was first, securing the plate offered by Mr. Mawley with Mons. E. Y. Teas, Marquise de Castellane, Baronne de Rothschild, Alfred Colomb, Gloire de Dijon, and Paul Neyron, all of good substance. Mr. E. Berry, gardener to the Countess of Leven and Melville, was second with Marquise de Castellane, Capitaine Christy, Louis Van Houtte, François Michelin, Magna Charta, and Madame Lacharme even and fresh; J. P. Bookless, Esq., Wimbledon, being third with fair blooms.

For six Roses from amateurs who had not previously won any of the Society's prizes, the Rev. Canon H. Girdleston, Sunningdale, won the leading prize with large but rather old blooms of Alfred Colomb, Paul Jamain, Duchesse de Vallombrosa, Thomas Mills, Charles Lefebvre, and Madame Caroline Kuster. The Rev. A. Foster Melliard, Bury St. Edmunds, was second with fine blooms. Mr. W. Harris, gardener to E. M. Betham, Esq., Denne Park, Horsham, third with a very neat collection; and Mr. Ernest Milkins, Lyndhurst, Sutton, Surrey, was fourth in a class of twelve competitors.

For six blooms of suburban-grown Teas or Noisettes there was only one entry, Mr. J. Bateman, Highgate Road, N.W., being awarded the third prize for small and poor examples.

For six new Roses not in commerce previous to 1879 there were five competitors. Mr. J. B. Hall, Larch Wood, Rock Ferry, Cheshire, was first with Duke of Teck, William A. Richardson, Duchess of Bedford, Comtesse de Choiseuil, Harrison Weir, and Julius Finger. Mr. G. P. Hawtreay, Aldin House, Slough, was a close second, Comtesse de Choiseuil and Harrison Weir being good. The Rev. Alan Cheales, Brockham Vicarage, Surrey, was third. Five entries.

Miscellaneous exhibits were numerous and occupied considerable space in the conservatory. Very prominent was the handsome group from Messrs. Barr & Son, Covent Garden, which is described in another page. Mr. G. Prince of Oxford sent ten boxes of extremely fine Tea and Noisette Roses. Messrs. W. Paul & Son, Waltham Cross, also exhibited a large number of handsome Rose blooms. Mr. T. S. Ware, Tottenham, had a group of hardy plants, Lilliums being especially remarkable. Messrs. Lee & Son, Hammersmith, and Osborn and Son, Fulham, contributed collections of Roses. Mr. J. Walker of Thame had some fine trusses of Sweet Williams; Mr. B. Poster, Corse End, Maidstone, sent collections of Violas and Campanulas; Messrs. H. Cannell & Sons, Swanley, handsome Verbena blooms; Mrs. Pemberton, Romford, a collection of old Roses; and from Chiswick a large group of Mignonette was contributed, representing a number of different strains. Mr. John House of Peterborough exhibited a stand of that lovely Rose William Allen Richardson, which was the admiration of all who saw it.

CALTHA LEPTOSEPALA.—This is a very distinct species of the Marsh Marigold genus, of very dwarf habit, scarcely rising from 4 to 6 inches from the soil. Leaves shining green, roundish-cordate, with crenated edges, spreading; in the plants I have seen nearly flat

upon the surface of the ground. Flowers freely produced, nearly or quite 2 inches across; white, and veined externally with yellow. Superficially they much resemble miniature white Water Lilies, and are produced from May to July. It is a native of the western States of North America, where it favours marshy localities, and it thrives well under cultivation in very damp situations, and is on that account very acceptable owing to its very distinct appearance. It is increased by division of the root, but as my knowledge of it is but recent it is impossible to give any particulars in that respect.—N.

A PROLIFEROUS ROSE.

ONE of my Rose trees has indulged in the strange freak of producing blooms from blooms—that is to say, a shoot issues from the centre of a flower and produces another flower; but what is



Fig. 1.

even more singular, the small leaves that are produced under the second bloom are more or less tinted with pink like the petals. All the blooms were not thus proliferous, and the tree is very healthy. I am not sure what the name of the Rose is, as the variety is very old. I send you an example, and am curious to know if anything like it has ever been seen before. Our clergyman thinks he has read of something of the kind but cannot remember where, but thinks it must have been in the Journal. I do not think it can have been during the last six years, as I have read it carefully since 1876, and cannot recollect seeing any record of a similar case. It is very singular, and I cannot under-

stand how this second growth and bloom can be produced. Can you tell me anything about it?—JAMES HEBDEN.

[We cannot name the Rose, which was much withered. The example is almost exactly similar to the one submitted to us by Mr. Lee of Clevedon nine years ago. Usually, in fact nearly always, the growth terminates in the flower, but in this case there has been an abnormal prolongation of the growing axis for which we cannot account. The leaves just above the dark part of the stem were very small, pinnate, and two or three of the leaflets partly rose-coloured. The stem, Rose, and leaves represented in our engraving issued from the centre of another Rose, which was borne where the letter A is placed.]

CRYSTAL PALACE ROSE SHOW.

BRIGHTNESS of colour and good substance were prevailing characteristics of the Rose blooms which were abundantly staged at the Sydenham Exhibition on Saturday last. Of the twenty-one classes enumerated in the schedule only one, that for twelve trusses of *Maréchal Niel*, was unrepresented, and in some the competition was much keener than was expected considering the close approach of the National Rose Society's Show at Kensington. Two long tables were devoted to the stands, the few gaps which occurred through the non-appearance of exhibitors who had entered various classes being filled with small Palms, Ferns, and other suitable plants, others of which also formed a central line on the tables between the boxes of blooms.

Nurserymen's Classes.—In these some very handsome blooms were staged, particularly in the class for seventy-two distinct varieties, single trusses, six fine collections being contributed. In every respect the best was that from Mr. B. R. Cant of Colchester, who had an even beautiful stand of well-formed richly coloured blooms; indeed the first prize had been awarded for it, when it was observed that two blooms of *Madame Nachury* were included—an obvious mistake, but according to the terms of the schedule this collection had to be disqualified, though very regretfully on the part of the Judges, who indicated their appreciation of the exhibit by awarding it an extra prize. So many of the best varieties were admirably represented in this that the names of the majority may be given—*Baroness Rothschild*, *Marie Baumann*, *Madame Gabriel Luizet*, *Beauty of Waltham*, *Souvenir d'un Ami*, *A. K. Williams*, *Duchesse de Vallombrosa*, *Marguerite de St. Amand*, *Duke of Wellington*, *Duke of Edinburgh*, *Charles Lefebvre*, *Devoniensis*, *La France*, *Duchess of Bedford*, *Marie Van Houtte*, *Dupuy Jamain*, *Madame Willermoz*, *François Louvat*, *François Michelin*, *Reynolds Hole*, *Rubens*, *Mdlle. Marie Cointet*, *Capitaine Christy*, *Duke of Teck*, *Madame Charles Truffaut*, *Etienne Levet*, *Madame Ducher*, *Madame Nachury*, *Le Havre*, *Général Jacqueminot*, *Fisher Holmes*, *Marquise de Castellane*, *Madame Bravy*, *Triomphe de Rennes*, *Mrs. Baker*, *Madame Clemence Joigneaux*, *Comtesse de Serenye*, *John Hopper*, *Boule d'Or*, *Auguste Rigotard*, *Sénateur Vaisse*, *Jules Finger*, *Magna Charta*, *Abel Grand*, *Elie Morel*, *Comtesse d'Oxford*, *Madame Eugénie Verdier*, *Cheshunt Hybrid*, *Dr. Andry*, *Annie Laxton*, *Madame Charles Wood*, *Princess Mary of Cambridge*, *Ferdinand de Lesseps*, *Victor Verdier*, *Prince Arthur*, *Duchesse de Morny*, *Mr. Harry Turner*, and *Madame Marie Finger*. Messrs. Paul & Son, Cheshunt, were placed first, but though their blooms were large and in some cases of good form they were generally rougher than the preceding; the best blooms being *Etienne Levet*, *A. K. Williams*, *Countess of Rosebery*, *Alfred Colomb*, *Beauty of Waltham*, *Duchesse de Caylus*, *Penelope Mayo*, and *George Moreau*. Messrs. Cranston & Co., Hereford, were placed second with smaller but even and fresh blooms; Messrs. Curtis, Sandford & Co., Torquay, taking the third position with brightly coloured examples of leading varieties.

For forty-eight triplets Messrs. Paul & Son were deservedly accorded the first prize, their collection including some exceedingly handsome blooms, and it was evident the firm had concentrated their strength on this class. The most noteworthy varieties were *Capitaine Christy*, *A. K. Williams*, *Xavier Olibo*, *Duchesse de Morny*, *Ferdinand de Lesseps*, *Alfred Colomb*, *Exposition de Brie*, *Souvenir de la Malmaison*, *Sénateur Vaisse*, and *Abel Carrière*. Mr. C. Turner, Slough, was a close second with creditable blooms, fresh, bright, and neat; Messrs. Cranston & Co. taking the third place. For twenty-four triplets and the same number of single trusses Messrs. C. Turner, Frank Cant (Colchester), and Cranston were the prizetakers, all showing well. Mr. B. R. Cant had the best twelve Teas and Noisettes, comprising fine blooms of *Souvenir d'un Ami*, *Madame Caroline Kuster*, *Souvenir d'Elise*, *Madame Bravy*, *Rubens*, *Madame Ducher*, *President*, *Marie Van Houtte*, *Paul Neyron*, *Devoniensis*, *Innocente Pirola*, and *M. Jules Margottin*. Messrs. Mitchell & Sons, Uckfield, Sussex, followed very closely with good examples of *Rubens*, *Devoniensis*, *Comte de Paris*, *Catherine Mermet*, and *Belle Lyonnaise*. Messrs. Cranston were third, *Madame Bravy*, *Perle des Jardins*, *Jean Ducher*, and *Catherine Mermet* being noteworthy for their size and good form.

Amateurs' Classes.—The exhibits in these classes were not characterised by such general merit as in the preceding, and in the majority the blooms were rather small, though most of the collections included some fine blooms. The leading class was that for forty-eight distinct varieties, single trusses, and in this there were six

competitors; Mr. G. Rushmore, gardener to Sir C. R. Rowsley, Bart., Tendring Hall, Colchester, being awarded chief honours for substantial blooms, the following varieties being particularly well represented:—Jules Margottin, Duchesse de Caylus, François Michelin, Marguerite de St. Amand, Abel Carrière, Miss Hassard, Mons. E. Y. Teas, Thomas Mills, and Général Jacqueminot. G. P. Hawtrey, Esq., Aldin House, Slough, secured the second position with a collection nearly equal to the other in merit; Mr. J. Davis, Wilton, Salisbury, being third. In the class for thirty-six varieties the competition was also keen, eight collections being staged. Mr. W. Harrington, gardener to E. Mitchell, Esq., Corbet's Tey, Romford, gaining the chief honours with handsome blooms, closely followed by Mr. John Sargant of Reigate, and Mr. Rushmore. For twenty-four triplets and twenty-four single trusses Messrs. Hawtrey, J. Hollingworth, Turkey Court, Maidstone; T. Evans of Marston, Oxford; and the Rev. J. H. Pemberton, Havering-atte-Bower, Romford, were the prizetakers. For twelve Tea or Noisette varieties Mr. Harrington won leading honours with a praiseworthy collection, comprising fine blooms of Madame Lambard, Rubens, Perle des Jardins, Amazone, Madame Sertot, Marie Van Houtte, Madame Hippolyte Jamain, and Souvenir d'un Ami.

Open Classes.—The ten classes open to all exhibitors were very interesting, especially those provided for collections of white, yellow, pink, and crimson Roses, the others being chiefly for stands of one variety. A fine collection of Devoniensis from Mr. B. R. Cant was selected for first honours in the class for twelve trusses of any Tea or Noisette, Mr. J. Matlock, New Headington, Oxford, following with Souvenir d'un Ami. The best samples of Marie Baumann were staged by Messrs. Curtis, Sandford & Co.; Abel Carrière by Messrs. Paul & Son, Mr. C. Turner taking second with Charles Darwin very fine. Mr. W. Farren, How House, Cambridge, had the best twelve trusses of François Michelin, large handsome blooms; Mr. B. R. Cant taking first with a collection of Capitaine Christy, very large and full. The same exhibitor secured chief honours for a collection of yellow Roses, the following varieties being admirably represented—Marie Van Houtte, Madame Falcot, Isabella Sprunt, Rêve d'Or, Madame Welch, Gloire de Dijon, Jean Ducher, Caroline Kuster, Solfaterre, Marie Van Houtte, and Boule d'Or. He also took the lead in the class for white Roses, having Devoniensis, Innocente Pirola, Rubens, Niphotos, Madame Lacharme, Souvenir d'un Ami, Madame Willermoz, Souvenir de Paul Neyron, and Madame Bravy being the most notable varieties. Still continuing his success, Mr. Cant was first with crimson and velvety crimson Roses, his best blooms in the former class being Comtesse d'Oxford, Dupuy Jamain, Dr. Andry, Duchesse de Caylus, Duke of Teck, Alfred Colomb, Mrs. Baker, Sénateur Vaisse, A. K. Williams, and Marie Baumann; while in the latter class the finest were Duke of Wellington, Dr. Sewell, Duke of Edinburgh, Charles Lefebvre, Général Jacqueminot, Prince Camille de Rohan, Duchess of Bedford, and Fisher Holmes. The finest collection of pink Roses were also from Colchester; Marie Cointet, Madame Gabriel Luizet, Marguerite de St. Amand, Elie Morel, Marie Finger, and La France being the principal varieties staged.

Miscellaneous exhibits were not very numerous. Messrs. H. Cannell and Sons, Swanley, had a group of Gloxinias and Ferns, Messrs. Osborn & Sons a collection of Roses, and Mr. Wells of Red Hill samples of his spray-distributor.

A TRIAL OF EARLY TURNIPS.

SOME complaints of a scarcity of really good early Turnips last year induced the writer to inquire why it was so, and the answer was that the sorts grown ran to seed so quickly that very few Turnips of a useful size were to be had from the first sowings. It was, therefore, resolved this year to procure seed of as many sorts of early Turnips as possible, and to give them a fair trial side by side. Unfortunately all the seed had not arrived when the first sowing was made on March 4th of Early Strapleaf White Stone, Early Red American Strapleaf Stone, White Stone or Six Weeks, Extra Early Paris Market, Early White Flat Dutch, and Early Snowball. Seven days later close beside these sorts was sown Purpletop Munich, Silverball, Jersey Lily, and Teltow Early Yellow. By the second week in May these sowings were affording an excellent supply of small Turnips, many of which continued to improve, and were in use up to this time (June 24th), overlapping a sowing of all the sorts on April 14th, some of which are quite ready for use.

On May 30th Mr. Thomas of Maresfield Park happening to call, I requested him to examine the Turnips with me, and after a careful comparison it was decided that Purpletop Munich was best and Early Red American Strapleaf Stone second best, due attention being given to size, crispness, and flavour. Two or three other sorts were quite equal to Red American in size, but were decidedly inferior in the other more important points of excellence. Extra Early Paris Market all "bolted" without any perceptible root-swelling. Teltow Early Yellow also burst speedily into flower, more in the guise of a weakly dwarf weed than a cultivated Turnip. Early Snowball was the first to throw up its flower stems of those sorts which were really useful, and it was followed

by Red American, White Stone or Six-weeks, and Strapleaf White. Of the sowing on April 14th Purpletop Munich is again first and best, the next being Early Strapleaf White Stone, closely followed by Red American Strapleaf. Extra Early Paris Market has not run to seed, but its roots are unworthy of comparison with any of the others except Teltow Yellow, which appears worthless.—EDWARD LUCKHURST.

ASPERULA HIRTA.

THIS is, in my opinion, the most handsome species of Woodruff among those introduced from other countries. It is very dwarf in habit, growing from 3 to 4 inches high, with very slender suberect stems in close tufts. Leaves linear-oblong, whorled, 3 to 4 lines long. Flowers borne in terminal racemes, 3 to 4 lines across, cruciform, white shaded with pink, very freely produced, and they are very effective in contrast with the deep green elegant foliage, somewhat resembling miniature stars. It is a gem for the rockery, enjoying a sunny fissure, where it thrives rapidly, and it is readily increased by division of the roots or by the young cuttings, which will strike in a cold frame although they are rather slow. I have also raised it from seed. It is a native of the Pyrenees, and was first introduced in 1817, although we seldom meet with it even in the most complete collections; flowering from July to September. I obtained two plants from Froebel and Co. of Zurich, and last season it was greatly admired and freely distributed. The British *A. odorata* (Sweet Woodruff) is also a charming little plant for spring flowering, and I noticed a very happy arrangement during May in which it was fittingly employed. The groundwork of the bed was the common green Stonecrop (*S. acre*), in which were large patches alternately placed of this plant and blue *Myosotis*, surrounded with double red Daisies.—N.

ROSE SHOW AT THE MANSION HOUSE.

ON Friday last an Exhibition of Roses was held under the patronage of the Lord Mayor, the funds raised by the admission fees and the subsequent sale of the blooms shown being devoted to two charitable institutions. Ten classes were provided for amateurs only, two prizes being offered in each—namely, a silver and a bronze medal. In most of these classes very satisfactory blooms were staged, but by far the most extensive and beautiful portion of the display consisted of collections of Rose blooms and miscellaneous plants from nurserymen. These occupied the spacious and handsome apartment known as the Egyptian Hall, which presented a most brilliant and attractive scene when illuminated by the electric light. The blooms were arranged in banks on each side of the Hall, but though abundance of moss was employed it was observed that a few more Ferns suitably disposed would have considerably improved the effect, as there was rather too great a preponderance of bright colours. At each end of the Hall were pyramidal groups of Pelargoniums, Tuberous Begonias, and Fuchsias from Messrs. H. Cannell & Sons, Swanley, which were very striking. Around the columns and near the walls were also some tasteful decorations from the same firm, consisting chiefly of Delphiniums, *Spiræa Filipendula* fl.-pl., Roses, and Fern fronds, which formed graceful wreaths and banks, the Delphiniums being particularly effective. The chief exhibitors of Rose blooms in large numbers were Messrs. Paul & Son, Cheshunt; W. Paul & Son, Waltham Cross; G. Prince of Oxford; John House, Peterborough; Keynes & Co., Salisbury; Rivers & Son, Sawbridgeworth; Cooling and Son, Bath; Francis & Co., Hertford; Rumsey, Waltham Cross; and C. Turner of Slough.

The principal amateur exhibitors were Alfred James Waterlow, Esq., Great Doods, Reigate; Mr. G. Duffield, gardener to H. K. Mayor, Esq., Winchmore Hill, N.; Alfred Slaughter, Esq., Jarvis Villa, Steyning; E. Mawley, Esq., Addiscombe; C. E. Cuthell, Esq., W. H. Wakeley, Esq., and James P. Kitchin Esq., Hampton, who secured the leading prizes in all the classes with blooms of fair size and substance.

The general arrangements were satisfactorily conducted under the supervision of Mr. J. Forsyth Johnson, Horticultural Director of the Alexandra Palace.

CURRENT TOPICS.

THERE are several points of interest in the Journal of June 22nd which I would like to notice, and first as to layering Strawberries. The plan recommended by "SINGLE-HANDED" I can endorse as the best that can be tried, and superior to raising the plants in pots: in fact, anything which I want extra good and quick ready for use, and which may require preparation by a previous pricking-out in frames, are planted in half soil and half manure. Strawberries with a fortnight only in such a mixture will at this season obtain a valuable start. When time cannot be spared for preparing plants, quite as good results as can be obtained by layering in pots is obtainable by selecting the strongest

runners and planting them when rooted directly in their permanent quarters. We have about a thousand young plants which were thus planted last season, and which now average from 18 inches to 2 feet in diameter. These were planted after Peas, the ground being merely hoed and cleaned.

With regard to what Mr. Muir says about Lettuces, I may state that I find Hicks' Hardy Cos as procured from Messrs. Veitch of Chelsea the best summer sort I have been able to obtain, and it is also the best for winter use; in fact, we have it all the year round. However, the sort that may do well in one locality may be of little use in another; and, that aside altogether, it is found that tastes differ considerably in the matter of what is the best kind.

I imagine "W. J. M." will find Victoria the best late Potato he can grow, quality considered. Champion will soon be out of cultivation as a general field crop. Many are now growing Magnum Bonum extensively in this district; but, to give it as good a character as our experience warrants, it is very variable in quality. The other kinds named are all of inferior quality here. Grampian was good last year and might be worth a trial, bearing in mind this remark, which was made to me the other day by one of our estate mechanics—"The longer ye keep a new kind o' Tatle the mealier it gets, if it's wuth anything at a'."

As a cultivator of both Foxgloves and Hollyhocks let me remark on the singular mode of enhancing the value of a given flower at the expense of another which "SINGLE-HANDED" has taken. There is no basis for comparing the two on the ground taken. One might just as well object to employing half-hardy bedding plants for an autumn display on the ground that Primroses, Anemones, Wallflowers, &c., are as beautiful, or more so, and much more cheaply and easily cultivated. Because we have hundreds of Foxgloves flowering just now and during July, is that a valid reason for doing away with Hollyhocks, which are at their best from the middle of August to the end of October?—B.

RICHMOND HORTICULTURAL SHOW.

JUNE 29TH.

EIGHT years of steady progress have placed the Richmond Society at the head of those in the neighbourhood of the metropolis, and their shows have attained considerable fame both for extent and for the excellent quality of the productions there staged. The Exhibition held on Thursday last in the Old Deer Park was no exception to the rule, the same satisfactory advance being observable that has characterised each successive show. Indeed it may be safely asserted that it was the best the Society has yet held, and much credit is therefore due to Mr. G. Eyles, the new Secretary, for having in the first year of his management rendered such good service in forwarding the Society's interests. In nearly all the very numerous classes the competition was good, and in some cases it was more than ordinarily keen. Four marquees, two of moderate size and two very large, were filled with the exhibits, the former being chiefly devoted to vegetables and fruits and cottagers' productions, the others containing the groups, specimen plants, cut flowers, and table decorations.

Though the weather was dull and threatening, a large number of visitors assembled, amongst whom were the Duke and Duchess of Teck, the Lady Mayoress, and the Belgian horticulturists.

Stove and Greenhouse Plants.—For so late a period these were admirably represented by several collections, including well-grown fresh healthy specimens, and in some cases superbly flowered. Messrs. T. Jackson & Son, Kingston, were the most successful exhibitors in the open class for nine plants, having fine examples of *Ixora Williamsi*, flowering freely; *Allamanda cathartica*, vigorous; *Erica ventricosa* Bothwelliana, even and floriferous; *Rondeletia speciosa* major, with numerous large richly coloured flowers; and *Kalosanthes* Dr. E. Regel, a beautiful variety represented by a fine plant. Messrs. Peed & Son, Norbury Nurseries, Streatham, took the second position with specimens very little inferior to the preceding; *Pimelea spectabilis*, *Allamanda Hendersoni*, and *A. grandiflora*, with *Stephanotis floribunda* being the most noteworthy. Mr. H. James, Castle Nursery, Lower Norwood, followed, *Kalosanthes Phœnix* and *Bougainvillea glabra* being well shown. In the class for six plants from exhibitors in the Society's district, Mr. C. Attrill, Bank Grove, Ham, won chief honours, having *Kalosanthes coccinea*, *Allamanda Hendersoni*, and a *Bougainvillea* strong and freely flowered. Mr. Bowell, gardener to Lady Parker, Stawell House, Richmond, was second with a plant of *Peristeria elata* bearing a spike 3 feet high with twenty flowers and buds. *Allamanda grandiflora* was also in satisfactory condition with several others.

Pelargoniums.—A bright display of these was contributed. For six Show varieties Mr. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, gained the chief award with *Madame Thibaut*, *Setting Sun*, *Robina*, and *Prince Leopold* very well flowered. Mr. Croxford, gardener to Mrs. Dunnage, Albury House, Surbiton, and Mr. J. W. Wells, gardener to J. Rodgers, Esq., Selwyn Court, Richmond, were second and third respectively with much smaller plants. Mr. Wiggins also had the best six Fancy varieties, *Pilgrimage*, *Lady Harvey*, *Lucy*, and *Mrs. Graham* being in grand form. Mr. Croxford

again took the second position, but with healthy plants. Two collections in the class for six Zonal or bedding varieties were very noteworthy; these were from Mr. Bond, gardener to Mrs. Evans, Beech House, Teddington, and Mr. Croxford, who were first and second respectively. In the first-prize collection the plants were of even size, about 4 feet in diameter, and bearing fine trusses of flowers. The varieties, too, were well selected, comprising *Madame Thibaut*, *Master Christine*, *Nemesis*, and *Madame Baltet*. Mr. Croxford's best plants were *Mrs. Turner*, a fine rich rose-pink, and *Wonderful*, a deep glowing scarlet, both single varieties, and very effective.

Ferns.—Few of the extremely large specimens occasionally seen at the London shows were staged here, but all were distinguished by surprising health, and in one or two of the leading collections the plants were all that could be desired. For six exotic Ferns Mr. B. Morrell, gardener to J. S. Rutter, Esq., The Cedars, Richmond, was adjudged the principal position, his plants including excellent examples of *Davallia Mooreana*, *Gymnogramma Peruviana argyrophylla* very fine, *Dicksonia davallioides*, *Davallia pyxidata*, and *Gymnogramma chrysophylla*. Mr. G. Stevens, Putney, followed closely with *Dicksonia antarctica*, *Platynerium alcorni* large and fine, and *Adiantum concinnum*. Messrs. W. Fromow & Son, Turnham Green, secured the third position, four really creditable collections being staged in this class. In the district class for six Ferns, Mr. D. East, gardener to F. Wigan, Esq., Clare Lawn, East Sheen, carried off the first prize for well-grown plants; Mr. Morrell being second also with specimens in very fine condition. Mr. C. Prickett, gardener to Dr. Francis, Manor House, Richmond, had the best twelve hardy Ferns, choice varieties and in good condition; Messrs. Wells and Morrell following with very similar plants.

Fuchsias.—In several classes these were admirably shown, although there was considerable difference in the style of training adopted. The finest specimens were shown in the open class for nine, and the Judges very properly selected a collection from Mr. Morrell for the chief honours. These plants were extremely even and graceful, of conical form, about 4 feet high, and flowering profusely; the lateral branches drooping slightly with their own weight, gave a very graceful appearance to the plants. The second prize was accorded to Mr. E. Beckett, gardener to J. P. Currie, Esq., Sandown, Esher, who had by far the largest plants grown, some exceeding 6 feet, all very healthy and well flowered. Mr. Bond followed with large conical-shaped plants in creditable condition, one example of *Earl Beaconsfield* being greatly admired.

Groups.—An important portion of the Exhibition was constituted by the entries in the open class for a group of plants arranged for effect in a space not exceeding 100 square feet. Six attractive and very diversely arranged groups were staged; but though there was considerable difference of opinion respecting the justness of the inferior awards, the one selected for the premier position was generally admired as both novel and tasteful. This was from Mr. H. James, who might with advantage show such groups more frequently, as they are instructive, and form a most agreeable break from the stereotyped even banks of plants too commonly staged. The second prize was secured by Messrs. Fromow and Sons, who had a graceful combination of fine-foliage and flowering plants, very bright and effective; but this, and the group from Mr. W. Brown, Richmond, placed fourth, were so similar in character and merit that they deserved equal awards. Mr. J. Bruckhaus, Hooper's Nursery, Twickenham, was third with a diversified arrangement of Palms, Ferns, *Dracaenas*, and *Crotons*, with *Begonias*, *Campanulas*, and *Gloxinias*.

Amongst the numerous other plants shown the *Calceolarias* deserve especial notice, particularly the premier collection from Mr. East, which were in excellent health and the foliage finely coloured; the varieties *Madame Hunnibelle*, *Prince Albert Edward*, *Laingi*, *Chantini*, and *Cbelsoni* being beautifully represented. The other collections from Messrs. Sallows and Wigan were also good. Fine-foliage and Tuberous *Begonias*, *Orchids*, *Gloxinias* were all staged in satisfactory condition.

Cut Flowers.—Prominent amongst these were the Roses, which were extremely fresh and highly coloured. In the nurserymen's classes Messrs. G. Paul & Son, Cheshunt, secured the chief prizes with magnificent blooms of all the leading varieties. Mr. W. Rumsey, Waltham Cross, also contributed some handsome blooms. In the open class for twenty-four blooms Mr. C. Warwick, gardener to J. P. Kitchener, Esq., Manor House, Hampton, took the lead with fine fresh samples of excellent substance. Mr. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston, also staged well in the same class. E. Mawley, Esq., Addiscombe, gained the chief award for twelve with beautiful blooms, and in other classes the following exhibitors gained well-deserved honours.—Mr. W. Croker, gardener to W. Register, Esq., Lawn Lodge, Isleworth; Mr. W. Bates, gardener to J. E. Meek, Esq., Poulett Lodge, Twickenham; Mr. E. Lake, gardener to E. Ascheron, Esq., Haversham Grange, Twickenham; and D. Roberts, Esq., Park Villa, Richmond. Several special prizes were offered for Roses and other cut blooms by C. Selwyn, Esq., Selwyn Court, Richmond; D. Roberts, Esq.; Messrs. J. & G. Peirce, H. Herbst, and others, and most were well competed for, Messrs. Moorman, Bates, Hinnell; Stephens, gardener to J. Bull, Esq., Redholm, Teddington; and Berry, gardener to the Countess of Leven, Roehampton House, being the most successful exhibitors.

Vases, bouquets, and table decorations were numerous shown, and some tasteful designs were submitted. Three stands from Mrs. Hol-

ford, The Cottage, Petersham, for which the silver medal given by the Duke of Teck was awarded, were very novel, the flowers consisting of white Water Lilies, *Gladiolus Colvillei* albus, with a few yellow Marguerites and *Spiræas*, leaves of the Copper Beech and *Adiantum* fronds being arranged with them. It was, however, observable that these were scarcely suitable for a table, as they were rather heavy, and further, only one side had been completely finished. Mr. W. Brown was the principal prizetaker for bouquets, and contributed some pretty arrangements; he was also successful in other classes for stands of flowers.

Fruit.—Numerous collections of fruit were staged in most of the classes, and the leading exhibits were of very good quality, though several others were characterised by a rather too noticeable deficiency in regard to ripeness, which was especially the case with the majority of white Grapes shown. For a collection of six dishes Mr. Wildsmith, gardener to Viscount Eversley, Heckfield Place, Hants, was placed first with finely coloured Black Hamburg Grapes, a good Queen Pine Apple, Brown Turkey Figs, Suttons' Heckfield Hybrid Melon, and Bellegarde Peaches. Mr. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, was a close second, his principal dishes being fine black Grapes, an even and well-ripened Queen Pine Apple, and good-sized Condor Peaches. Mr. Davis, gardener to the Rev. H. Morris, Roehampton Park, was third with smaller but creditable samples. The best three bunches of black Grapes were staged by Mr. P. Feist, gardener to R. J. Ashton, Esq., Bishopgate House, Staines, who well deserved the first prize awarded him for handsome bunches of Black Hamburg with large finely coloured berries. Mr. Davis and Mr. W. Fyfe, gardener to W. F. Dick, Esq., Thames Ditton House, were second and third respectively with less well-finished samples. Mr. Feist and Mr. J. Wagstaff, gardener to H. Elam, Esq., Firsleigh, Isleworth, were two of the chief exhibitors of white Grapes, Messrs. Attrill and Lake having good Peaches, and D. Heckle, gardener to W. Cunard Esq., Lebanon House, Twickenham, staged fine Strawberries.

Vegetables were largely and well shown, the leading prizes being secured by Messrs. E. Beckett, Wagstaff, and Morrell, who had some excellent collections. Messrs. Carter & Co.'s prizes for four dishes of Peas, of the varieties Telegraph, Telephone, Stratagem, and Pride of the Market, brought six competitors, the awards being granted to Mr. G. Williams, gardener to C. Liddell, Esq., Peasmarsh Place, Sussex; Mr. W. Chittleburgh, gardener to Col. Rous, Worsted House; and Mr. Phillips of Meopham, Kent. Messrs. Sutton & Sons' prizes for Cucumbers were also well competed for.

The Veitch Memorial Prizes.—This year the trustees of this fund decided to offer these prizes at Richmond—namely, £5 and a Veitch Memorial medal for the best stove or greenhouse plant in flower, and the same amount for the best two bunches of black Grapes. In the plant class there were six entries, the prizes being awarded to Mr. J. Hinnell, gardener to F. A. Davis, Esq., Anglesea House, Surbiton, for a specimen of *Erica tricolor dumosa* of globular form 5 feet in diameter, very evenly trained, and in good health, the flowers also being numerous but a little past their best. Mr. Bates had a well-flowered *Bougainvillea glabra* in the same class, and Messrs. Peed and Son a healthy *Allamanda grandiflora*. In the Grape class Mr. Hudson won amongst five competitors with two grand bunches of Madresfield Court, the berries of great size and superbly coloured.

Miscellaneous groups and exhibits were numerous and very attractive, the most noteworthy being the following:—Messrs. J. Veitch and Sons, Chelsea, had a beautiful group of Roses in pots, with Japanese Maples at the back and a margin of *Eurya latifolia* variegata. Six boxes of fine Rose blooms were also staged by the same firm. Messrs. C. Lee & Son, Hammersmith, contributed an attractive collection of ornamental shrubs and trees and Roses in pots, with boxes of Rose blooms. Messrs. Osborn & Sons, Fulham, had a pretty group of hardy plants; Mr. Wiggins a group of Pelargoniums; Mr. Kinghorn, Richmond, a group of miscellaneous plants tastefully arranged; and Mr. F. Pestridge, Brentford, had a collection of eighteen varieties of Tricolor Pelargoniums. All these were highly commended, as were also some particularly handsome Cherries from Messrs. Rivers & Son of Sawbridgeworth, and samples of a spray-distributor from Mr. Wells of Red Hill.

VINES AT LONGLEAT—MANURE.

EVERYONE interested in Grape-growing is deeply indebted to Mr. Taylor for his full and clear account of the system which has produced such splendid results at Longleat. In the cardinal question of manuring, however, which was treated of on page 485, there is an uncertainty which perhaps Mr. Taylor could in some degree clear up. Earth which has been used is necessarily of variable composition; but Dr. Voelcker, in the eighth volume of the second series of the Journal of the Royal Agricultural Society, states that in some specimens which he examined there was found to be about 0.07 per cent. of nitrogen added (equal to about 0.09 of ammonia), each time the same earth was used. In other experiments by Dr. Gilbert the addition of nitrogen was found to be more than double this amount. It obviously depends greatly on the quantity of earth used and the number of individuals using the dry earth; but in some places the earth after use is

dried and used twice, or three, four, or five times over, each time, of course, receiving an increment of strength. If used only once, and Dr. Voelcker's estimate is taken, the quantity employed by Mr. Taylor—half a bushel, or say 50 lbs. to the square yard—would be equivalent to a dressing at the rate of 12 tons of best rotten farmyard manure per acre, while at Dr. Gilbert's estimate it would be equal to as much as 20 tons dung per acre. If passed more than once through the closet the strength would be proportionately increased. Might I, therefore, ask Mr. Taylor kindly to say, as nearly as circumstances permit him, whether the earth he uses has been employed only once or more than once? and about what number of persons have on an average of the year used the earth, and what quantity has been so used?—J. B. K.

[In answer to "J. B. K.," I have to say that the earth is only used once. The closets, of which there are four, are fitted with a handle, which is pulled in the same way as when water is used. They are only in use about six months out of twelve, and then the number using them is on the average about fourteen. Only a small quantity of earth is used, but that is in the best possible condition; for failing naturally dried earth at any time there is always a heap of burned clay (of which I prepare a great quantity every winter) to fall back on. I was asked, when the buildings were erected, whether I thought it worth my while keeping them supplied with earth. My answer was that I should be very pleased to do the same for a whole town. There is no manure either natural or artificial so valuable as this, and yet in the majority of cases it is not only wasted, but is so managed as to bring on disease and premature death. It cannot be too often impressed on our readers that dry earth is a perfect deodoriser, and that water is not. I cannot obtain sufficient of this manure, and up to the present time half of the Muscat house has had none this season.—WM. TAYLOR.]

SPIGELIA MARYLANDICA.

THIS plant, which is commonly known as Worm Grass, from its medicinal qualities, is seldom alluded to in the press; yet it is worth growing. It is a showy little perennial with slender four-angled stems 9 to 15 inches high, varying considerably according to position as regards moisture. Leaves opposite, sessile, ovate-acuminate, acute, entire. Flowers four to eight at the top of the stems, with tubular corollas 1 to 1½ inch long; tubes rich crimson; limb with five ovate acute divisions, the upper surface yellow, which affords a striking contrast to the high-coloured tube. It is an extremely pretty plant for the border or rockery, enjoying a shady damp position in peat, loam, and sand, although a moist position is the chief thing to be considered in its successful cultivation, as I have grown it in soil entirely free from peat but damp, and it grew admirably; the position was withal most exposed, with the sun pouring upon it nearly all the day. Among others the Rev. Ewbank of Ryde expressed astonishment at the healthy condition of the plant in question. I mention this so that those who do not possess a shady place need not be without such a charming plant. It is a native of the United States, where it is very abundant, and from whence it was introduced as early as 1694, and a figure of it appears in the "Botanical Magazine," pl. 80. Its proper place is undoubtedly in association with other American damp-loving plants, such as *Trilliums*, *Lilies*, *Gentians*, &c. It is readily increased by division of the root, which is best accomplished early in spring just as growth commences.—N.

WEST OF ENGLAND ROSE SHOW.

HEREFORD.

THE sixteenth annual Exhibition of Roses in connection with the above Society was held on Thursday the 29th ult. in the Shire Hall, when, favoured with glorious weather, a numerous company of the Rose-loving and sight-seeing public were attracted to our ancient city. It need not be stated that, as an exhibition of Roses, the one just held did not come up to the average of former years. Nobody expected it would. At Bath last Wednesday both in quality and quantity the National Rose Society's Provincial Exhibition fell far short. But how could the issue be otherwise? The long-continued cold and sunless weather has for some weeks dangerously retarded vegetation, with its inevitable results of no blooms at all, or accompanied with the damaging faults of coarseness or want of symmetry. Strange to say, colour this year is all that can be desired (pink Roses of the old type of John Hopper and Clemence Joigneaux are quite red). This curious fact is worthy of comment, as light and sun are the main factors in the production of colour. The fixture for the day following Bath surely was most unwise, as it kept off several of the chief nurserymen, who always made a point of exhibiting at Hereford when they could. Nevertheless, in spite of all these drawbacks, and although a sad gap was left in the Hall by the absence of the Heavitree and Old Weir

exhibits (and will be in every exhibition throughout the season), a most enjoyable and excellent meeting was held, at which several new competitors meritoriously came to the front.

The following are the lists most likely to interest the general public:—Messrs. Cranston & Co. swept the board in the nurserymen's open division with seventy-two and thirty-six trebles, and twenty-four varieties. Their collection of seventy-two consisted of the following varieties—H.P.'s, Hippolyte Jamain, Jeanne Sury, grand in colour. Caroline Kuster, Pierre Notting, Marquise de Mortemart, Le Havre, fine; Etienne Levet, Marguerite Brassac, Duchesse de Morny, Madame C. Wood, Lælia, Exposition de Brie, Prince Arthur (Cant's), most useful; Marie Finger, Mrs. Baker, exquisite; Alba Rosea, Jean Liabaud, Victor Verdier, Sir Garnet Wolseley, Marie Cointet, J. S. Mill, Alice Durcau, Madame Victor Verdier, Caroline de Sansal, La France, everywhere gorgeous; A. K. Williams, the finest Rose in the Hall; Capitaine Christy, Charles Lefebvre, Baronne de Rothschild, Marguerite Manoin, L'Esperance, Louis Van Houtte, Monsieur Noman, Général Jacqueminot, Madame Nachury, Sénateur Vaisse, Madame Gabriel Luizet, Dingée Conard, Eugène Verdier, E. Y. Teas, Edouard Morren, Maurice Bernardin, Edouard Morren, Souvenir de la Malmaison. Messrs. Curtis & Co. took second prize with smaller, but fresh, smooth, and very well-coloured blooms. Especially noticeable were Pride of Waltham (a new and decided acquisition), Penelope Mayo, Camille Bernardin, and Paul Neyron, a Rose by no means to be despised when bright and symmetrical. This firm also took second prize for twenty-four varieties, and an extra prize, £5, for seventy-two varieties open to nurserymen not living in Herefordshire, this class not filling to entitle them to first prize. Messrs. Dawson & Whiting took third prize in seventy-two varieties, second prize in thirty-six trebles, and third prize in twenty-four varieties. In class, eighteen varieties, three trusses, there was no competition. In twenty-four single varieties the second prize was taken by Mr. Wm. Grove, Hereford, the only competitor.

In Class B, amateurs, open to the United Kingdom, thirty-six varieties, single trusses, first prize £5 (with National Rose Society's medal) was taken by Mr. W. J. Grant, Ledbury; second prize by Miss Bulmer, Broadlands, Hereford; third prize (not taken). Mr. Grant's collection, contained blooms small but fresh and good, with a fine sprinkling of Teas. Twenty-four varieties, single trusses.—First, Rev. C. H. Bulmer, Credenhill Rectory, Hereford; second, Miss Bulmer; third prize, Mr. Berrington. The special prize given by Cranston's Nursery and Seed Company, Limited, for a collection of twenty-four English-raised Roses not in commerce previous to 1878, had no entries. We may be allowed to say the wonder would be if it had. By the National Rose Society's useful catalogue of Exhibition Roses anyone can easily reckon that about thirteen varieties only could have been staged, and if the special had not been handicapped by any limit of time at all, even then only some twenty-seven varieties of exhibition Roses could have been staged.

In the amateur close division the competition was very keen, the more so doubtless from Miss Bulmer elevating herself this year to that position in the open amateur division, which the prize list shows she is so well capable of adorning. The blooms throughout this division, except those of Mr. C. Williams, Lower Eaton, were generally small or coarse, and evidently appealed for more persevering and intelligent treatment. Messrs. Cranston & Co. carried off first prize for twenty-four blooms of any one Rose, with faultless blooms (each) of La France, and Messrs. Dawson & Co. second prize with same varieties.

In Class D for new Roses Messrs. Curtis & Sandford took first prize with the following varieties as most noticeable—H.P. Mrs. Jowitt, very good; H.P. Pride of Waltham, also excellent; and H.P. Ferdinand Chaffotte, useful; and H.P. Madame Ducher, very promising. Messrs. Curtis & Sandford also carried off the prize for twelve blooms of any new Rose with H.P. Alfred Dumesnil, a new Rose of a most useful colour, fine form, and shown remarkably well. A fine collection from Mr. G. P. Hawtrey, Aldin House, Slough, arrived too late for competition. They were awarded on their extraordinary merits and misfortune a special prize.

The decorative department was unusually large, and carried out in the best possible taste and skill. Lord Bute's first prize was taken by Miss M. Berrows, and thoroughly deserved its premier position, especially as it was a first attempt in public. Miss Cypher of Cheltenham took the chief prizes in bouquets, for which she is so justly celebrated. Mr. J. H. Arkwright and Mrs. Arkwright of Hampton Court, Leominster, and Mrs. Harry Arkwright acted as Judges in this division. Rev. A. J. Williams, Alderminster Rectory, Stratford-on-Avon; Mr. Hall, Birkenhead; and Rev. C. H. Bulmer, Credenhill Rectory, Hereford, in the nurserymen's division; and Messrs. Cranston & Sandford in the amateurs' division.—HEREFORDSHIRE INCUMBENT.

LÆLIA HARPOPHYLLA.

THIS has now been in cultivation for about ten years, but until quite recently it was very expensive, and could only be ranked amongst the curios and rarities of Orchid collections; now, however, Mr. B. S. Williams of Upper Holloway has succeeded in obtaining a good stock, and in consequence plants are being offered at much more moderate prices that will place a really useful Orchid within the reach of scores who would have been

quite unable to obtain it at the previous high prices. It is one of the small-flowered species, but quite unlike any of the better known forms, such as *L. autumnalis*, *L. anceps*, and others. The flowers are star-shaped, with narrow spreading sepals and petals of a rich orange vermillion hue, a colour very rare amongst



Fig. 2.—*Lælia harpophylla*.

Orchids, and correspondingly striking. The neat little flowers if cut singly and wired would be admirably suited for bouquets or arranging with other flowers in vases for the table, and for choice and distinct buttonholes they would also be well adapted.

MUSHROOMS.—The idea of using virgin spawn for crops is new and interesting to me. There is force in the idea. I may mention that the heaviest crops and largest and finest Mushrooms I ever had were from beds in which the spawn was spontaneously developed—that is, without artificial spawn, the material of the bed consisting of stable

litter that had been laid in a pit for Melon culture for some time before, the spawn running in the soil bed after it was made up. I have many times gathered more than a pound weight to the foot from our beds, and received a higher price for all sold (many bushels) than that named in the Journal.—GROWER.



THE visit to this country of the BELGIAN HORTICULTURISTS may be said to have terminated last Saturday. After visiting Cliveden and Dropmore (on Wednesday the 28th ult.), with which and the surrounding scenery they were much impressed, and equally so with Frogmore, where a right royal repast was provided by command of Her Majesty, they inspected the excellently conducted nursery of Mr. Turner at Slough, and were hospitably entertained by the esteemed proprietor. On Thursday some of the market gardens in the Thames valley were inspected, and a visit was paid to the Richmond Show, which almost surprised them by its excellence, both as regards culture and variety of products, as a local exhibition. In the evening our friends attended the anniversary dinner of the Gardeners' Royal Benevolent Institution, at which the Lord Mayor presided, the company numbering 175 guests.

— ON Friday they visited Mr. WILLIAMS' ESTABLISHMENT AT HOLLOWAY. Passing through some forty houses and admiring the display of Orchids—Vandas, Cattleyas, and Odontoglossums being especially fine, also the great and healthy stocks of plants, such as Dipladenias, Allamandas, Ixoras, Crotons, Nepenthes, &c., occupied nearly three hours. One of the large cool houses was prepared for the luncheon, which by its excellence was in keeping with the nursery, and a most agreeable hour was spent amidst loyal toasts and complimentary greetings.

— A DRIVE of a few miles through a beautiful district was next enjoyed, and Mr. CUTBUSH'S NURSERIES at Barnet visited; one celebrated for the extensive collection of specimen variegated Hollies, the other for the propagation and culture of hardwooded plants—Heaths, Epacrises, Dracophyllums, Acacias, Hedaromas, Eriostemons, Pimeleas, &c., the stocks of which elicited expressions of approval. A return was then made to Highgate, and the nursery there passed through, and its great collection of Ivies, Sweet Bays, and choice evergreens inspected. A treat of a different character brought the day to a close.

— ADJOINING the above nursery is HOLLY LODGE, the residence of Baroness Burdett-Coutts. This estimable lady not only readily afforded facilities for an inspection of the gardens and grounds, but provided elegant refreshments in the garden saloon and museum. Situated at the immediate verge of London, the pleasure grounds are almost startling by their rural beauty. The grounds, boldly undulated and richly wooded, walks enclosed in foliage, smooth lawns, and bright flower borders and beds, with the structures devoted to fruit and plant culture, afforded an opportunity of seeing gardening in its various aspects most ably conducted by Mr. Willard. The time, too short, was spent most enjoyably here. In the secluded grounds there is no suspicion of being near the busy haunts of men, yet pass through the thick belt of trees that fringe the hill and the largest city of the world is spread at our feet. Thus a busy day was brought to an agreeable termination, and all went home satisfied.

— ON Saturday the programme included CHISWICK, KEW, and SION HOUSE, with luncheon provided by Dr. Masters at the "Star and Garter," Richmond. Even a summary description of these establishments will not be attempted, and it must suffice to say that Chiswick is the embodiment of practical and experimental

horticulture; Kew unequalled for its rich stores of vegetable products; and Sion House is a fine type of a nobleman's residence and of general gardening as conducted by one of the most skilled practitioners, Mr. Woodbridge. The weather during the week has been fine, and all the arrangements have been carried out in a satisfactory manner.

— ALTHOUGH the majority of the visitors RETURNED TO BELGIUM on the close of the programme, yet a few remained and visited Mr. Rivers' great fruit-growing establishment at Sawbridge-worth on Monday, the National Rose Show on Tuesday, also Messrs. Veitch's nursery at Coombe Wood—one of the most picturesque, well-furnished, and admirably conducted establishments of its kind in the kingdom. Mr. Waterer's nursery, we believe, has also been visited by some individuals of the party. The visit of the guests has been a most welcome one to the representatives of horticulture in this country, remembering, as do the latter, the splendid receptions that have so many times been accorded them on their sojourns in Belgium.

— THE anniversary dinner of the GARDENERS' ROYAL BENEVOLENT INSTITUTION was held at the Albion Hotel, Aldersgate Street, on Thursday the 29th ult., when the chair was occupied by the Lord Mayor, supported on the right by Comte de Kerchove de Denterghem, Governor of the Province of Hainaut in Belgium, and on the left by Dr. Hogg. There was a very large attendance, which included the whole of our Belgian visitors, the Sheriffs of London and Middlesex, Dr. M. T. Masters, Mr. G. F. Wilson, a large number of amateurs, most of the leading nurserymen and seedsmen—in all a goodly company of 175 persons. The Lord Mayor strongly urged the importance of the Institution and necessity of having its claims pressed home upon the attention, not of gardeners only, but on that of the employers of gardeners. It was humiliating to think that out of the large number of people who are interested in gardening, and to whom its delights minister so largely, so few should be supporters of this admirable Institution. The subscriptions announced by the Secretary amounted to £600.

— A CORRESPONDENT writes:—"There are various methods of SUPPORTING MELONS WHEN GROWING ON A TRELLIS, including baskets, boards, and nets; but the most simple supports we have seen are employed by Mr. Wm. Taylor at Longleat. These consist of a piece of string tied in a circle, leaving one end out about a foot long. Two other pieces are fastened to the circle, so as to make three equal supports, and all is ready for fixing. This is done by slipping the circle on to the bottom of the fruit, and fastening the three supporting pieces to the trellis. After taking notice of some of the elaborate supports supposed to be necessary by some, the Longleat supports appear almost ridiculously simple, yet if the ties are properly fastened a casualty is out of the question, no matter how heavy the fruit may be."

— WE are informed that Her Royal Highness the Duchess of Teck visited MR. W. BULL'S EXHIBITION OF ORCHIDS last week, and expressed her appreciation of the many choice examples in the rich and varied display.

— ONE of the best of all Honeysuckles is LONICERA GRATA, and is particularly good in sbrubberies, as it does not climb, being itself of shrubby habit. For the purpose of garden decoration it should be extensively planted. The flowers are very showy, being red on the outside and yellow within. Flowers are always to be found except during winter. It is a sub-evergreen of vigorous growth. In appearance it resembles somewhat the common Honeysuckle. A native of North America.

— A CORRESPONDENT states that "the GIANT HERACLEUM is quite a striking feature in the Cambridge Botanic Garden. It reaches a height of 11 feet, and has leaves 6 feet long by 5 broad.

There is scarcely a finer hardy plant of tropical aspect, and now its immense umbels of white flowers make it extremely handsome. Before the seeds ripen the heads are cut off, as otherwise it would be a weed all over the garden, but in this way it is easily kept under control. The greatest luxuriance is attained where there is shade and moisture. It is commonly known as *Heracleum giganteum*."

— MR. W. IGGULDEN, writing from Marston House Gardens, Frome, observes:—"There is a remarkably fertile specimen of *ABIES (PICEA) NOBILIS* growing here. Several of the branches are carrying six or more handsome cones, but on one branch there is a cluster of ten large cones, and there are two more only slightly separated. They quite weigh down the branch, and I am afraid I shall have to remove them or lose the branch, which it is almost needless to say would much disfigure the tree. The fertile branch is about 30 feet from the ground."

— MR. PETER BARR writes us as follows:—"The partnership subsisting between myself (the managing partner) and Miss Fanny Pryor, under the style of Barr & Sugden, having ceased, I have commenced business under the style of BARR & SON at 34, King Street, Covent Garden, W.C." One of the most extensive and varied collections of hardy flowers we have ever seen was staged by this firm on the occasion of the Rose Show at South Kensington. The group occupied a length of tabling of upwards of 100 feet, and consisted of fine masses of Lilliums, Irises, Paris Daisies, *Chrysanthemum segetum*, *Rhodanthes*, *Hydrangea paniculata grandiflora*, with a choice assortment of Delphiniums, Iberises, Ixias, Orchises, *Calochorti*, *Gладиoli*, Funkias, Cloves, Pinks, a new white variety Peter Barr raised by Mr. Howard being particularly attractive, and many other flowers too numerous to mention. The collection afforded an agreeable change from the Roses in the corridor, and was much admired by visitors to the Show.

— "W. J. M., *Clonmel*," writes:—"In your leading notes last issue you deservedly noticed some good things of recent introduction. Would you permit me to add *MALVA MOSCHATA ALBA MAJOR*, a new pure white Mallow, to those you name? The Journal, while in no hurry to write down bedding and half-hardy plants, has never closed its space against the merits of herbaceous and hardy ones. I welcome this introduction of last year on this latter ground, and desire to give Mr. Cannell, Swanley Nurseries, the credit he deserves for adding it to our border flowers. If I remember rightly it was certificated by the Royal Horticultural Society in the autumn of 1881. It is, therefore, not as plentiful as it will be by-and-by. I have grown my plants in a cold frame. This attention they seem to like, but when more plentiful I shall give them a separate bed, and would recommend your readers to do so too."

— RELATIVE to encouraging "ALL THE YEAR ROUND" GARDENING AMONGST COTTAGERS, Mr. W. H. Wharton, the Honorary Secretary of the Haslington Horticultural Society, writes:—"In several Shows I am acquainted with, I notice that many competitors for the flower garden prizes embellish their flower beds a few days only before the Judges inspect them, allowing just sufficient time to establish the plants. This practice is generally found to place at a great disadvantage other competitors whose gardens have been laid out and planted for a much longer period. The method we are now adopting will, we think, have a tendency to counteract this. The gardens are to be inspected during April, May, June, and July, and the period will probably be extended in next year's competition. I do not know whether this plan is adopted in other districts, but if you approve of the principle, and deem it worthy of consideration, perhaps you will kindly commend it to others." We

approve of the plan and commend it, but when the competition is great and the district extensive we have found difficulties not infrequently arrive on the question of judging.

NATIONAL ROSE SOCIETY.

BATH, JUNE 28TH.

THIS year's provincial Exhibition of the National Rose Society was held under extremely favourable conditions in the Sydney Gardens, Bath. Nothing was wanting to insure success, as the citizens of Bath fully appreciate the queen of flowers, and the efforts of those who are the means of bringing together such quantities of Roses, this being very evident from the support in the shape of subscriptions given, extra prizes offered, and the large and brilliant assemblage that congregated to inspect the Exhibition. As we have before mentioned, the Sydney Gardens are most convenient and admirably adapted for an exhibition. The weather generally of late has been most unfavourable for either exhibitions or the production of first-class Roses, and, indeed, of Roses of any description, owing to the prevalence and destructiveness of unusual numbers of insect pests. Hence the frequent remarks to be heard expressive of surprise at seeing so many excellent blooms staged. It is true, however, in nearly every case more or less the Roses staged gave signs of injury from excessive rains, this being more apparent in those of light shades. Many of these were faulty, and if staged as some exhibitions of the same magnitude would have spoilt the chances of the stands for the premier positions. A few of the well-known older varieties were conspicuously good throughout the display, and none more so than the *Marquise de Castellane*; while *Marie Baumann*, *Comtesse d'Oxford*, *A. K. Williams*, *Mons. E. Y. Teas*, *La France*, *Charles Lefebvre*, *Etienne Levet*, *Madame Gabriel Luizet*, *Horace Vernet*, *Alfred Colomb*, and the *Duchess of Edinburgh* were largely and well shown. Most of the leading professional rosarians were represented, including Messrs. Paul & Son, Cheshunt; C. Turner & Sons, Slough; Cranston and Co., Hereford; G. Prince, Oxford; Curtis, Sandford & Co.; R. Veitch & Co., Exeter; Cooling & Son, Bath, and others. While amateurs were well represented by Mr. Joseph Davis, Wilton, Salisbury; Mr. T. B. Hall, Rock Ferry, Cheshire; Mr. J. Scott, Warminster; Mr. G. P. Hawtrey, Slough; Rev. J. H. Pemberton, Havering-atte-Bower, Romford; Miss J. Watson Taylor; Mr. A. Evans, Marston, Oxford; the Rev. Alan Cheales, Brockham Vicarage, Surrey; Mr. C. Davies, Aynhoe, Banbury, and a few others.

Nurserymen's Classes.—Great interest was centred in the class for seventy-two single trusses, in which the premier prize was a silver cup value £10, presented by the Mayor of Bath, with £5 added by the National Rose Society. This was easily secured by Messrs. Paul and Son, Cheshunt, their most formidable opponents' Roses being scarcely up to their usual excellence. The Cheshunt Roses, though on the whole remarkably fine, still comprised several weak specimens, a difficulty evidently being experienced in staging so great a number of blooms, and this was still more apparent in the three other collections staged. The best in the premier stands were the blooms of *François Michelon*, *Etienne Levet*, *Madame Gabriel Luizet*, *Paul Neyron*, *Mrs. C. Wood*, *Charles Lefebvre*, *Guillaume Guillemot*, *Magna Charta*, *Catherine Mermet (Tea)*, *Comtesse de Choiseul*, *Marquise de Gibot*, *Marie Baumann*, *Marie Finger*, *A. K. Williams*, *Beauty of Waltham*, *Duchesse de Vallombrosa*, *Constantin Tretiakoff*, *Mons. E. Y. Teas*, *Comtesse de Nadaillac*, *Duke of Edinburgh*, *Ulrich Brummer*, *John Hopper*, *Ferdinand de Lesseps*, *La France*, *Xavier Olibo*, *Centifolia Rosea*, *Comtesse d'Oxford*, *Miss Poole*, *Alfred Colomb*, and *Prince Arthur*. The second prize was awarded to Messrs. Cranston & Co. The Hereford Roses were of good size and substance, but bore unmistakeable signs of adverse influences. The best were the blooms of *Mdlle. Marguerite Mandin*, *Constantin Fretiakoff*, *Sir G. Wolseley*, *Marquise de Castellane*, *La France*, *A. K. Williams*, *Mons. E. Y. Teas*, *Comtesse d'Oxford*, *Beauty of Waltham*, and *Alfred Colomb*. Messrs. Curtis, Sandford & Co. followed with much fresher but smaller blooms. Messrs. Parker & Son of Bristol were awarded the fourth prize, but most of their blooms were too far advanced.

Messrs. Paul & Son were placed first in the next class, that for forty-eight distinct varieties, three blooms of each. Nearly the whole of the varieties mentioned as having formed part of their premier collection were again well represented. Messrs. Curtis, Sandford & Co. occupied second position with a collection inferior in size only, but at the time these notes were taken superior in freshness and colour, and less advanced than the Cheshunt Roses. The third prize was awarded to Messrs. Cranston & Co. for a creditable collection. With triplets of twenty-four distinct varieties Messrs. Paul & Son were again successful. Messrs. C. Turner & Sons secured the second prize in this class with generally good specimens. Messrs. Curtis, Sandford & Co. worthily occupied the third position.

There were only two exhibitors of eighteen Teas and Noisettes, distinct, and in single trusses. Mr. G. Prince easily secured the first prize with a good collection, in which the best represented were *Souvenir de Paul Neyron*, *Souvenir d'un Ami*, *Catherine Mermet*, *Francisca Kruger*, *Madame Lambard*, *Alba Rosea*, *Rubens*, *Amazon*, *Madame H. Jamain*, and *Moiré*. In Messrs. Paul & Son's second-prize stand were good examples of *Rubens*, *Comtesse de Nadaillac*, *Devoniensis*, *Souvenir d'un Ami*, and *Jean Ducher*. Exhibitors in the foregoing classes were excluded from the three following.

The best thirty-six distinct single trusses were staged by Mr. J. Walters, Mount Radford Nurseries, Exeter; this collection was generally fresh and good. Messrs. R. Veitch & Sons, Exeter, followed with a collection that comprised several damaged blooms. The third prize went to Mr. J. Jefferies, Cirencester, whose stands also included several blooms damaged by rain. Mr. J. Walters was also first with eighteen distinct varieties, three trusses of each. Messrs. Jefferies and Sons occupied the second position, being closely followed by Messrs. G. Cooling & Sons. Mr. J. Matlock, New Headington, Oxford, had the best stand of twelve distinct Teas or Noisettes, the most noteworthy being Rubens, Catherine Mermet, Maréchal Niel, Madame Bravy, Devoniensis, Marie Guillot, Marie Van Houtte, and Souvenir d'un Ami. In the second-prize stand of Mr. J. Walters, Narcisse, Perle des Jardins, and Madame Berard were good. Messrs. R. Veitch and Sons staged a fresh and good collection, and were awarded the third prize.

Amateurs' Classes.—A silver cup value ten guineas, with £5 added by the National Rose Society, was offered for the best thirty-six distinct single trusses, and for this there were but two competitors. Mr. J. Davies easily secured the valuable prize with a very creditable collection, in which were comprised excellent examples of Sultan of Zanzibar, Louis Van Houtte, Auguste Rigotard, Madame Gabriel Luizet, Duke of Edinburgh, Alfred Colomb, Mdle. Marie Rady, Marie Baumann, Mdle. D'Ombain, A. K. Williams, Mons. E. Y. Teas, and Miss Hassard. The second prize was adjudged to T. B. Hall, Esq. Mr. J. Davis also secured first position with twelve triplets, distinct, being closely followed in this instance by Mr. G. P. Hawtrey. The former had Beauty of Waltham, Madame Lacharme, Madame Montet, Marquise de Castellane, Marie Rady, and La France in good condition; while the latter staged good blooms, among others, of Mons. E. Y. Teas, Duke of Edinburgh, Clemence Joigneaux, Souvenir de la Malmaison, Thomas Mills, and Devoniensis. Mr. T. B. Hall staged the best twelve distinct Teas or Noisettes, his Madame Berard, Comtesse Riza du Parc, Comte de Paris, Souvenir d'un Ami, and Anna Ollivier being noteworthy. Mr. Hawtrey followed closely.

The exhibitors in the three foregoing classes were debarred from competition in the three following. For twenty-four distinct single trusses the first prize, a silver cup value five guineas, was presented by Mr. S. P. Rudd, and this attracted several very good collections, of which the best was staged by Mr. A. Evans. Mr. J. Scott followed with a creditable stand. Mr. T. Hobbs, Lower Easton, Bristol, was awarded the third prize, the fourth going to Miss J. Watson Taylor, both staging well. With eighteen distinct single trusses Mr. J. Scott occupied the first position, staging among others good examples of François Michelon, Cheshunt Hybrid, Triomphe de Reunes, Dr. Andre, and Marquise de Castellane. Mr. A. Evans and Miss Taylor were awarded the remaining prizes in the order named. Mr. C. Davies staged the best nine Tea or Noisette, single trusses, these consisting of Anna Ollivier, Marie Van Houtte, Triomphe de Rennes, Madame C. Kuster, Alba Rosea, Bouquet d'Or, and Catherine Mermet. The bloom of the latter was remarkably fine, and, in addition to materially influencing the Judges in favour of the stand, secured the exhibitor the Society's silver medal for the best Tea in the Show. Miss Watson Taylor followed closely, and Mr. A. Evans was a good third.

The next class in the schedule, not open to any exhibiting in the foregoing classes, was for twelve distinct, single trusses, and this attracted seven stands. The first prize was easily secured by the Rev. J. H. Pemberton. Mr. Julius Sladdon, Badsey, Evesham, and the Rev. C. Gardiner were worthily awarded the remaining prizes in the order named. In the class for six distinct trusses all exhibiting in the foregoing classes were excluded. Here the first prize was awarded to the Rev. Alan Cheales, his stand including beautiful blooms. Mr. W. Duck, Bath, followed; and to Mr. J. Stuckey, Bath, was awarded the third prize. The Rev. J. H. Pemberton had the best six distinct Tea or Noisettes, and was followed by Mr. G. Mount and Mr. E. Claxton, Allerton, Liverpool, in the order named.

Extra Class.—Messrs. Paul & Son, Cheshunt, presented as first prize for twenty-four Teas or Noisettes in bunches and distinct a piece of plate value five guineas, and this was secured by Miss J. Watson Taylor, a second prize being awarded to Mrs. Cater, both staging rather small but fresh blooms generally. The best six new Roses, distinct, and which were not in commerce previous to 1879, were staged by Mr. G. P. Hawtrey. Of these the most noteworthy were Mons. Alfred Dumesnil and Brightness of Cheshunt. The other varieties were Beauty of Stapleford, Charles Darwin, Harrison Weir, and Catherine Soupert. Mr. T. B. Hall was awarded the second prize, Paul Jamain being the best in this stand.

Open Classes.—In the class for twelve Teas or Noisettes Mr. W. Duck, Bath, presented for the first prize a piece of plate value five guineas, and this was well won by Mr. G. Prince, Messrs. Paul and Son taking the second, and Mr. J. Matlock the third prize, the exhibits being most creditable in each instance. The best twelve new Roses not in commerce previous to 1879 were staged by Messrs. Paul & Son, and consisted of fairly good examples of Madame Pawiére, Guillaume Guillemot, Pride of Waltham, Ulrich Brummer, Edward André, Madame Montet, Rosieriste Jacobs, Comtesse de Ludrie, Francis Levett, Comtesse de Camando, and Ferdinande Chafolte. Messrs. Curtis, Sandford & Co. were awarded the second prize, who, in addition to several of the varieties in the premier stand, had good examples of Madame Ducher and Margaret Manoin. Messrs. Cranston & Co. followed with very similar varieties, Mary Pochin in

addition being most noteworthy. There were several excellent stands in the class for twelve trusses any dark Hybrid Perpetual, and remarkably fine were the first-prize examples of A. K. Williams staged by G. Paul & Son. Mr. C. Turner followed with brilliant examples of Marie Baumann; Curtis, Sandford & Co. taking the third prize with the same variety in excellent condition.

Stands of twelve light Hybrid Perpetual, any one kind, were not extensively shown, but the quality of the winning examples was high. It is very rare that La France is seen in such condition as those which secured the first prize for Messrs. Cranston & Co., and out of this remarkable stand was selected the premier Hybrid Perpetual in the Show, this being awarded the Society's silver medal. Mr. A. Evans also had La France in grand condition, and was awarded the second prize, Mr. G. Prince following with good examples of Baronne de Rothschild. The latter was the only exhibitor of twelve single trusses of any Tea or Noisette, and was worthily awarded the first prize for Catherine Mermet in good condition. The same exhibitor also staged very good blooms of Alba Rosea. Mr. Prince was first for twelve single trusses of any yellow Rose with Perle des Jardins, Messrs. Cranston & Co. and Mr. J. Walters being placed equal thirds, the former staging moderate examples of Maréchal Niel and the latter of Marie Van Houtte. No award was made in the class for any seedling Rose not yet in commerce or announced.

A handsome silver cup, value £10, called the "Bath City Cup," presented by Mr. S. Pavitt and others of Bath, was offered for a group of Roses arranged for effect in a space of 60 superficial feet. This was well won by Messrs. G. Cooling & Son, who arranged a fine bank in which were pyramids of good blooms of popular sorts, and innumerable vases of Roses and single specimens completed the effect. It must be admitted this firm had the best position, and it is equally certain their exhibit deserved it. The second prize went to Mr. G. Hawtrey for a Rose Temple in which was suspended a charming basket of Teas. The materials, however, were too meagre for a good effect, neither was the position suitable. Mr. J. Matlock followed with a very poor arrangement.

District-grown Roses.—Among these were numbered many excellent exhibits, which, if scarcely so fine as those from a distance, were unsurpassed for freshness and brilliancy of colour. Particularly good were the twenty-four distinct single trusses which gained Messrs. G. Cooling & Son the Bath Licensed Victuallers' cup, value five guineas. The second-prize stand was staged by Mr. S. J. Pavitt, nurseryman, Bathwick; and Mr. Henry Hooper was a good third. Messrs. G. Cooling & Son presented a silver cup for twelve distinct single trusses, open to amateurs, and this was well won by Mr. C. Catley, Mr. F. Clark and Mr. S. P. Budd taking the remaining prizes in the order named. Mr. S. Butler had the best six distinct single trusses, Mr. W. Duck being second, and Mrs. Pope third.

The best twelve bouquets of Roses staged by Mr. W. C. Drummond were particularly fresh and good. Messrs. G. Cooling & Son well won the second prize, and to Mr. W. Smith was awarded the third prize. Mr. H. Catley was the only exhibitor in the amateurs' class for six bouquets, and was deservedly awarded the first prize.

Mr. W. C. Drummond and Col. Landor kindly lent the Committee a number of fine-foliage plants and Ferns, and these were judiciously and effectively arranged at the back and between the stands of Roses, and added materially to the general effect. Messrs. Osborn & Sons, Fulham, sent several stands of very fine Roses, and Mr. Hooper arranged a fine lot of Carnations and Pansies. The weather experienced was all that could be desired, and as the attendance was large we may safely congratulate the respective Secretaries of the National Rose Society and the Sydney Gardens Floral Fête Committee, and all interested in those Societies, upon the undoubted success attending their labours.

MANURING POTATOES.

A FEW months ago there was a correspondence in the Journal about which was the best plan in manuring Potatoes, whether to put the manure over the set or under the set. I always had an objection to placing the manure over the set, but could not at that time say that my objection was the result of practical experience; but it so happened that I had tried the experiment in the spring, and was only waiting for digging-up time to be able to say what I thought of the result. I do not find much difference in the crop of Royal Ashleaf whether the manure was over the set or under; but I find that in the former case the manure is in much too close contact with the Potatoes, so that if the people who ate them saw them dug up they would not fancy them. For this reason, if no other, I cannot say I recommend the practice, and prefer the manure spread over the top of the ground and dug in, or else placed below the set.—AMATEUR, Cirencester.

QUEEN WASPS.

Is not the abundance or scarcity of wasps in autumn decided by the weather in July and August? Rain in those months drowns their nests, and our autumn fruits are saved from their depredations, but if those months are fine their numbers will be great in proportion. It must be a good thing to destroy the

queens in spring, but probably when we have done all we can in that respect enough nests will exist in June to admit of their becoming pests if circumstances are favourable. A very simple plan for destroying their nests is to pour coal tar in from an old watering pot, using a piece of turf to prevent the tar running out and being wasted. Many nests may thus be destroyed by one man in one evening at a nominal cost.—AN OLD SUBSCRIBER.

LIKE Mr. John Easter, I have no wish to enter into the wasp controversy, but the difficulty in my mind was how to keep out of it, so much interested have I been in the discussion. I have made at least half a dozen attempts to reply to the points raised, but the fact is the subject requires so much space and time that I have dropped it repeatedly, and a sense of duty only now compels me to give a few facts from my own observations.

I must say that when I read "DUCKWING'S" article on page 260 on the "Popular Fallacy" about wasps I remarked, "Then according to this theory, if our parents had never existed, we too should have been here, and more of us."

To my mind it was evident from "DUCKWING'S" first letter that he knew little about the subject, and every subsequent letter has proved it by the confusion of his reasoning, notwithstanding his reference to not "keeping our eyes open." For one thing, however, "DUCKWING" deserves the thanks of all readers of our Journal; he has been the means of bringing out some interesting letters from Mr. W. Taylor and "Y. B. A. Z."

Now for a few facts. In the spring of 1880 I ventured to call attention to the quantity of queen wasps I had killed, and advised others to do so if they wished to save their fruit crops. It is difficult to calculate the loss in money value of fruit destroyed annually by wasps, but it would in all probability amount to many thousands of pounds, which is a national loss; and every one of us knows of the individual losses, besides the vexatious disappointment, when we find our fruit, labours, and hopes destroyed by these pests. Therefore I hope the reminder before mentioned was not inopportune. I followed the wasps up so vigorously that very few escaped in this neighbourhood. Nearly every queen wasp, I believe, comes to my garden hedge in May for the same distance as the ordinary wasp would in case of the queens being left alone to breed, therefore I conclude that every queen destroyed in spring destroys a nest within a radius of a wasp's foraging flight. My plan of destroying them is to look out for them in the evening about sunset, when they appear to be most eager for their suppers, and consequently are easier of approach. They, apparently by smelling, find out where there is a particle of honeydew on the Hawthorn leaves. I have repeatedly seen them suck it off, and as they rise to fly away they are knocked down with a piece of wood shaped like a small cricket-bat for the purpose. On two occasions this spring I counted the proceeds of an hour's work, and destroyed over twenty each time, which at 2d. each would be good wages.

The result of killing the queens in the spring of 1880 before mentioned was that in the fruit season I never was so free from wasps. Two nests only in the district came under my notice, which were traced by the wasps' flight and destroyed, as every nest may be by people "keeping their eyes open" and noticing the direction they fly to their nests when they have had their fill from what they are feeding on.

What was the result of not killing the queens in other places? If my memory is correct one writer in the Journal wrote of the immense quantity in some place, stating he had a "million to spare." I well remember asking a nobleman's head gardener five or six miles away how he fared, and he said he never was plagued with so many wasps, adding, "I know of a score nests within a hundred yards of the lodge gates." I recollect being in a gentleman's gardens a few miles in another direction that year, and the gardens were alive with wasps, and I well remember seeing a Plum tree against a wall the fruit of which was being fast devoured.

To follow the correspondence with remarks would take too much space and time. My belief is, that every queen wasp seen in spring, if not destroyed in some way, will be the mother of a colony. I have killed hundreds and dissected many, examining them with magnifying glasses, and believe every one to be impregnated, and that the difference in size is chiefly in the different species of ordinary wasps. I enclose three specimens which are different in their markings, and which, I believe, are three different kinds, differing in size, and in some respects in their nature.

It is always a treat to me to dig out a wasp's nest intact, to mark their ingenuity in construction, even exceeding our bees, in constructing their pillars and passages, and excavating large holes in the earth, carrying in their mouths particles of soil long distances before they are dropped. Last October I was aware of

four nests some distance away which I determined to destroy before the autumnal flight of the queens, and taking a man with me at night, I destroyed them all. One nest I dug out very carefully and put every wasp in a bucket, and counting them at my leisure I found 345 queens out of the combs, besides probably half as many more in partially developed stages, many of which would have come out if left alone. This, I believe, was the weakest nest of the four, and I have no doubt that 1500 queens were destroyed in those four nests. It is people's own fault if they are troubled with wasps if they have the chance to follow them and destroy the nests; too few take the trouble to look them up, and so they are allowed to spread.—J. HAM.

[The three queens received differ in size and colour, and the characters of each would have been maintained in their progeny if our correspondent and the weather had been favourable for their increase.]

RAMONDIA PYRENAICA.

A VERY close-growing Pyrenean plant, with the leaves arranged in flattish rosettes. Leaves oblong ovate, coarsely bi-serrate, very hairy, with the surface deep green and much puckered. Racemes



Fig. 3.—*Ramondia pyrenaica*.

axillary, one-sided, 3 to 6 inches high, two to five-flowered. Flowers not more than an inch across; corolla rotate, with five lobes, violet purple; anthers yellow; there are also a few yellow spots at the throat of the corolla. This is a very attractive alpine and remarkably distinct, growing freely in pans or on the rockery, preferring a damp partially shaded position in rich light soil. It

should be so arranged that the rosettes are on the same plane as the soil. It commences to flower in May, and continues for two or three months. It is easily propagated by division or raised from seed, which it produces freely, especially in some counties. G. Loder, Esq., of Northampton, informed me that it ripened seed with him very freely. The side shoots taken off in a young state will root in sandy soil in a cold frame. It has been known and cultivated in this country for a very long period. Miller grew it at Chelsea in 1731 and much earlier. Parkinson describes it very minutely, having grown it in his garden, and he regarded it as an *Auricula*, for he calls it the "Blew beares cares with horage leaves"—(*Park. Parad.*, p. 237). Linnæus named it *Verbascum Myconi*, and it was figured under that name in the "*Bot. Mag.*," pl. 236.—X.

CROYDON HORTICULTURAL SHOW.

JUNE 28TH.

THE fifteenth Show of this Society was held in the grounds of Wellesley House, the residence of J. Spencer Balfour, Esq., M.P., an open and pleasant position for an exhibition of this character. Three marquees were devoted to the exhibits, one of considerable dimensions containing the groups and miscellaneous plants; the second, also very spacious, was devoted to the Roses and fruit, while in the third the cottagers' productions and vegetables were staged.

Groups.—One of the leading classes was that for a group of plants arranged for effect in a space of 100 square feet, the competition being confined to nurserymen. Mr. John H. Ley, Croydon, gained the first prize for a group consisting largely of fine-foliage plants, *Dracenas*, *Aralias*, and *Palms* predominating; amongst the latter was a fine *Stevensonia grandiflora*. *Ixoras* were the most noteworthy amongst the flowering plants, and the margin consisted of *Golden Selaginella*. Mr. R. W. Beedell, Wallington, was second with a larger number of flowering plants, and his group was consequently brighter if a little less graceful. The margin of blue and white *Lobelias*, with *Selaginellas* and *Isolepis*, was very effective. Mr. C. Chaff, Park Hill Nursery, was a good third, *Palms*, *Ferns*, and *Pelargoniums* being tastefully arranged with other plants. In the district class for gardeners and amateurs only Mr. Penfold, gardener to the Rev. Canon Bridges, Beddington, was adjudged the first prize for an extremely graceful arrangement of *Cordylines*, *Crotons*, *Cocos*, *Casuarinas*, with *Begonias* and other flowering plants, and an edge of *Caladium argyrites* and *Isolepis gracilis*. Mr. King, gardener to Phillip Crowley, Esq., Waddon House, was a very close second, a fine central plant of *Phyllanthus nivosus* being notable, *Tuberoses*, *Diplacus*, *Begonias*, and miscellaneous flowering and foliage plants being judiciously and tastefully employed; Mr. Fewell, gardener to J. C. Lanyon, Esq., Birdhurst, taking the third position with a group including some good plants, but rather too formal in design.

Fine-foliage Plants.—Some handsome specimens were staged in the classes for these and *Ferns*. For nine plants in the open class Mr. Penfold won easily with extremely fine examples of *Alocasia macrorrhiza variegata*, *Phyllanthus nivosus*, *Dracæna Lindenii*, *Anthurium crystallinum*, and *Martinezia Lindeniana* amongst others equally praiseworthy. Mr. King followed, his most noteworthy plant being a grandly coloured specimen of *Croton Johannis*, about 5 feet high, in splendid health, and with the colour better developed than we have seen before. Mr. Fewell took the third position, having large examples of *Areca lutescens*, *Stevensonia grandifolia*, and *Cycas revoluta*. In the district gardeners' class Mr. Penfold also won first with a most creditable collection, comprising grand specimens of *Latania borbonica*, *Aralia monstrosa*, *Areca lutescens*, *Carludovica Drudei*, and *Davidsonia pruriens*, the latter plant being extremely distinct and effective when shown in such fine condition. The same exhibitor had the best six exotic *Ferns*, *Adiantum cardiophyllum*, *Woodwardia radicans cristata*, and *Adiantum peruvianum* being remarkably healthy and fresh. In the class for the same number of hardy *Ferns* Mr. G. W. Cummins, gardener to A. H. Smee, Esq., The Grange, Wallington, gained principal honours with a choice collection of *Athyriums* and *Lastreas*. Mr. Penfold followed with smaller but healthy plants.

Orchids were shown by Messrs. King and Penfold, who were awarded equal first prizes for two good collections of six plants in the open class. Mr. King's plants comprised *Aerides Lobbi* with three spikes, *Dendrobium thyrsiflorum* with eleven spikes, *Lælia purpurata* and *Lycaste Deppei* both well flowered. Mr. Penfold's most striking plants were *Galeandra Devoniana* with twelve flowers, *Dendrobium Cambridgeanum*, and *Cypripedium Veitchii* in first-rate condition.

Roses.—These were largely represented, and the marquee devoted to them, the miscellaneous cut flowers, table decorations, and fruit was a highly attractive one. In the nurserymen's classes for *Roses* excellent collections were staged, especially by Messrs. B. R. Cant of Colchester, W. Rumsey of Waltham Cross, and Laing & Co., Forest Hill, who secured the leading prizes in the first two classes for forty-eight and twenty-four varieties. Messrs. Cant, G. W. Piper (Uckfield), and Coppin were the winners with stands of twelve *Tea* or *Noisette* *Roses*, the two first having very fair samples. In the amateurs' classes Mr. J. Ridout, gardener to J. B. Haywood, Esq.,

Woodhatch Lodge, Reigate; H. Slaughter, Esq., Jarvis Villa, Steyning; Mr. J. Bridges, gardener to G. Baker, Esq., Holmfels, Reigate; and the Rev. Alan Cheales, Brockham Vicarage, Reigate, were leading exhibitors, all having blooms of good quality, the Reigate specimens being remarkably good.

Table decorations, fruits, and vegetables were largely shown, and, like the other exhibits, were of admirable quality. The general arrangements were good; but although the weather was fine the attendance of visitors was not so large as might have been expected.

HERBACEOUS PLANTS.

THE *Aquilegias* have been very showy for some time. The great number of varieties of *A. vulgaris* and *A. glandulosa*, some of which are remarkably fine, have now become great favourites. *A. jucunda* is one of the most handsome of the genus, producing unusually large flowers, the calyx of which is bright blue, the corolla being blue and white with short curved spurs. I am afraid space will not permit much to be said regarding the *Delphiniums*, for they are too well known and appreciated, the *Larkspurs* being special favourites with most people. The same may be said respecting the *Pæonies*. They are found in nearly every cottage garden and well deserve the space allotted them. They have been exceptionally fine this season. *P. officinalis* is one of the most useful, and from this species the varieties with red, crimson, and white flowers have originated. The flowers last several weeks in perfection, and when the plants are not in bloom the foliage is very ornamental.

Violas are fine. There are so many varieties of these now used as hedges that they appear almost indispensable, and for the front of the herbaceous border associated with various other flowers of a dwarf character they are really valuable. There are also two or three species that deserve a word of praise. *V. gracilis*, a very dark blue, is flowering profusely, so also is *V. lutea* and *V. cornuta*. I lately saw a splendid tuft of *V. cornuta alba*. The flowers, as the name implies, are of the purest white and very freely produced. It is a good plant for edging some of the flower beds.

The *Dianthus* are aglow with their pleasing colours and sweetly scented flowers. What herbaceous border would be complete without a few plants of the favourite *Pinks* *P. plumarius* with its numerous varieties? *D. cæsius* is a very dwarf dense-growing species and well deserves a place; and *D. barbatus* (Sweet William) is so familiar to most people that little need be said regarding it. *Gypsophila acutifolia* is completely covered with its trusses of small pinkish white flowers; so also is *Silene colorata*, and *S. alpestris*, pure white, being dwarf and very free and admirably adapted for the front of the border. Several *Lychnis* are in flower, and amongst the most showy of the genus is *L. Flos-Jovis*, which has large dark pink flowers produced on footstalks a foot or 18 inches high, contrasting favourably with the soft silvery foliage. *Linums* and *Cerastiums* will remain in beauty for some time. *Geraniums* are both numerous and showy. *G. sanguineum* is a very handsome species and one of the best. *G. striatum* is a common species in cultivation, growing about a foot high in compact tufts, and flowers profusely throughout the summer. Other species that are well worth growing are *G. Endressii*, *G. macrorrhizum*, *G. eriostemon*, *G. gymnocalon*, *G. ibericum*, *G. pratense*, and *G. tuberosum*. *Dictamnus giganteus* and *D. albus* with its numerous varieties having rose, bright red, and white flowers are very handsome and are well worth cultivating.

Some species of *Erigeron* are well worth a little attention. This is rather an extensive genus, nearly a hundred species being known to botanists: they come from temperate and cold regions. Amongst the most showy are *E. philadelphicum* with small pink Aster-like flowers, *E. glabellum* with blue flowers, and *E. speciosus* lilac blue. The *Pentstemons* are well known to most people. Their pleasing colours and showy flowers entitle them to a place in every garden. *P. confertus* and *P. speciosus* are now very showy. A good purple flower that is often met with in gardens is the *Spiderwort*, *Tradescantia virginica*. This is a very pretty and interesting plant, growing about 1½ foot high. There are several varieties in cultivation—one with white petals, another with rose-coloured petals, and a double-flowered variety. *Potentillas* are now in great variety, and are well suited for the borders or rockery. There are many shades of colour, of which crimson, yellow, and white predominate.

The *Lupins* have been very showy and useful for some time. Amongst the most noteworthy are *Lupinus polyphyllus*. There are several very distinct varieties of this species, which is the commonest and at the same time one of the best species in cultivation. *L. arboreus* is another good species. The foliage is very handsome, being deeply cut or divided. The young flowers are a fine sulphur yellow, changing to light purple with age. *L. nanus* is the dwarf annual *Lupine*. This may also be planted near the

front of the borders and is very useful for pot culture. It varies considerably in colour, including white, yellow, and various shades of violet and blue.

Spiræas should be extensively grown, for they are grand subjects for the borders; they are not only very showy when growing, but extremely useful for cutting purposes. *S. japonica* should have good prominent positions, and this season they are exceptionally fine. *S. Filipendula* and the var. *flore-pleno* should certainly find a place; it is a tuberous-rooted plant, and grows from 1 to 2 feet high. *S. Aruncus* is another species that should not be overlooked; it produces large spikes of feathery flowers which nod and bend in the breeze. *S. palmata* is one of the most striking and effective in cultivation; the flowers are brilliant crimson. It is a native of Japan, and of recent introduction. *S. digitata* and *S. fulvescens* are both worth growing. The Red Valerian (*Centranthus ruber*) cannot be over-estimated, the long spikes of dark pink flowers make it quite conspicuous. The above are amongst some of the most showy that are in flower at the present time.—C. W.

FARNINGHAM SHOW.

THE pretty village of Farningham, dear to all lovers of the gentle craft, was in a state of unusual bustle and excitement on Thursday last, on the occasion of the annual Exhibition of the Farningham Horticultural and Rose Society, and the collection of plants and cut flowers then brought together were of no ordinary interest; while to the lovers of the Rose especially, the excellent prizes offered and the cups and medals to be contended for made it one of those shows which all desire to bear something of, and it is therefore to those that I must first refer. The Kentish growers were undoubtedly strong, and the amateurs' classes were decidedly better than the nurserymen's; while the competition was very good, seven or eight boxes being staged in each class.

In the nurserymen's class for thirty-six blooms the first prize was awarded to Mr. Cant of Colchester, who had some excellent blooms, although on the whole they were not equal to his usual form. The following were good—Madame Ducher, A. K. Williams, a fine bloom; Comtesse d'Oxford, Dr. Andre, Hippolyte Jamain, La France, Capitaine Christy, R. Wallace, Marquise de Gibot, Devoniensis, a beautiful bloom; Mrs. Laxton, Baronne de Rothschild, and Ducbessc of Val-lombrosa. Messrs. George Bunyard & Sons of Maidstone were a good second, and Messrs. Kinmont & Kidd of Canterbury third. In the class for twelve Teas Mr. Cant was again first with a very pretty box of Devoniensis, Jean Ducher, Maréchal Niel, Souvenir d'un Ami, Catherine Mermet, Moiré, Madame Bravy, Jules Finger, Souvenir d'Elise, a lovely bloom; Marie Van Houtte, and Rubens. Messrs. Bunyard & Co. were again second. In the amateurs' class for twenty-four Mr. John Hollingworth of Turkey Court, Maidstone, was first with a good box containing amongst others good blooms of Marie Baumann, Mrs. Baker, Hippolyte Jamain, Star of Waltham, Mons. Noman, Marie Finger, Charles Lefebvre, and Duke of Edinburgh. In the class for twelve the Rev. H. B. Biron was first with a very beautiful box containing Marie Baumann, an exquisite bloom, which also obtained the silver-gilt medal of the National Rose Society for the best bloom in the Show; Eugène Fürst, Baronne de Rothschild, Etienne Levet, Madame Gabriel Luizet, La Rosière, John Bright, François Michelin, and Camille Bernardin. The Rev. V. M. Fuller was second with a very nearly equal stand. In the class for nine blooms Mr. George Mount of Harbledon was first with excellent blooms of Duke of Edinburgh, Marquise de Castellane, Baronne de Rothschild, Eugène Fürst, La France, Hippolyte Jamain, Madame Gabriel Luizet, Louis Van Houtte, and Marie Baumann. The Rev. H. B. Biron was second, and Mr. Wakeley third. In the class for six blooms Mr. Mount was first, Mr. John Wakeley second, and Mr. Burnside third. In the class for six varieties of Teas Mr. Mount was first with Homère, Souvenir d'un Ami, Marie Van Houtte, Catherine Mermet, Jean Ducher, a very fine bloom; and Souvenir de Paul Neyron. In Class 9, for six blooms of one variety, Mr. Biron was first with good blooms of Marie Baumann, and Mr. Mount second with Madame Gabriel Luizet. Class 10 was a silver cup value seven guineas, subscribed for by amateurs and to be competed for by them. It was won by Mr. Mount with an excellent box containing Baronne de Rothschild, Charles Lefebvre, A. K. Williams, Capitaine Christy, Duke of Edinburgh, François Michelin, Marie Baumann, Fisher Holmes, Abel Carrière, a most wonderful bloom, Madame Gabriel Luizet, Star of Waltham, and A. Colomb. The five-guinea cup for the best box in the Show, given by the Members for West Kent (the winner of the seven-guinea cup not being allowed to compete), was awarded to Mr. W. Wakeley for La France, François Michelin, Camille Bernardin, Capitaine Christy, Duke of Connaught, Marie Rady, Baroness Rothschild, Duke of Edinburgh, Marie Baumann, Madame Gabriel Luizet, and Alfred Colomb.

The dinner-table stands and decorations were unusually good, the stands by Miss Hasell, Miss Dalton, Miss Burnside, &c., being excellent, and I have seldom seen stands of wild flowers more gracefully or effectively arranged. The table arranged with flowers for dinner as exhibited by Mr. Spottiswoode was light and excellent, Mrs. Seale not being up to her usual form, exhibiting two large baskets at either end and a tall stand in the centre.

Coming now to the general exhibits, which at Farningham are

always good, as several large places are in the neighbourhood, the arrangements for decoration were exceedingly well managed. The plants were carefully chosen, were not overlarge, and bright in colour; there was no overcrowding, and yet the space was well filled up. In the stove and greenhouse plants Mr. Spottiswoode was first with a very excellent lot of six well-grown plants: Anthurium Schertzerianum, Statice profusa, Tabernæmontana coronaria fl.-pl. not enough in flower, Clerodendron fallax, Ixora Williamsi, and Clerodendron Balfourianum. Mr. J. F. Burnaby-Atkins was second with two good plants of Dipladenia Brearleyana and D. Regina, Clerodendron Balfourianum, Statice profusa small, Stephanotis floribunda well flowered, and an Ixora. In six foliage plants Mr. Mildmay was first with a beautiful plant of Anthurium crystallinum, Yucca variegata, Croton Weismanni, Dracæna Baptistii, and others. The Ferns were well shown, and there was the usual assortment of Fuchsias, Begonias, &c., and the cottagers' productions were very creditable. Amongst them, as a bee-master, I could not fail to notice the admirable lot of supers filled with pure comb exhibited by Mr. Skinner, a cottager at Eynsford. They were of first-rate quality, and showed that the exhibitor kept bees intelligently and well.

The whole arrangements of the Show were excellent; the day was fine; Mr. Burnside, the able and active Secretary, carried out the arrangements in perfect order; and I should hope, financially as in other respects, the Show was a success.—D., Deal.

GENTIANAS.

—(Continued from page 537, last volume.)

THE usual method of securing a stock is to raise seed, which is easily procured from Mr. William Thompson of Ipswich or from Frœbel & Co. of Zurich, who have perhaps a greater variety. Large quantities are also yearly collected and find their way to our nurserymen, and in commencing the wisest plan to adopt is to purchase well-established plants. In reference to seed, it is best when it can be obtained to sow it as soon as fully ripe, when it will readily germinate. If kept for any length of time it is slow in germination. As the seeds are very small it is prejudicial to cover them deeply. A little sand sprinkled upon it will be quite sufficient, and attention must be paid to the watering. I have been very successful in raising seeds in pots or pans by placing the seeds on the surface of the soil after giving the latter a good watering, and cover it lightly with sphagnum moss, which retains the moisture about the seed and lessens the necessity of watering, while it affords a shade. It is necessary to watch the seed in germinating and remove the moss before the young plantlets are drawn. If the seed pans are placed in a cold frame in a sunny position, shading when necessary, there is no doubt about the result. Seed may be sown at any time from March to August; the earlier the better, as the young plants will make good growth if proper attention is given in pricking-off and finally planting out or potting them.

Some kinds are, however, readily increased by division of the roots—such as the common Gentianella (*G. acaulis*) and others which produce numerous underground stems. This should be done soon after flowering, and when planting it is essential to press the soil very firmly about them, otherwise they will suffer considerably before the summer is past, especially if very dry weather ensues. Close and rather strong soils suit such kinds well. It is difficult to increase a large number by division, as they only produce one central axis, from the crown of which the flowering stems are periodically sent up, and if these are indiscriminately divided the plant sickens and dies. I have seen Gentians in good order at Mr. T. S. Ware's at Tottenham, and in a private collection it would have been difficult to find a better group than that existing at Oakfield, Wimbledon Park, the residence of the late J. G. Joad, Esq., whose enthusiastic love for hardy flowers caused his garden to become a home for all the rarest and best. In Mr. Whitehead's grand collection at Bickley they muster strongly, and I have a lively recollection of a fine clump of the charming little *G. bavarica* in a little bog bed, which would seem to be the proper place for it. The scarce and lovely *Polemonium confertum* from the Rocky Mountains in the same position was also healthy. Continuing the species from last week we note the following for completing a good collection:—

G. cruciata.—A vigorous-growing South European species, 6 to 9 inches high, with lance-shaped shining leaves, and terminal and axillary flower clusters. Flowers very numerous, 1 inch long, sub-campanulate, deep blue, appearing during the midsummer months. It is a very hardy and easily grown plant, thriving in almost any position.

G. decumbens.—A very scarce and elegant species from Asiatic Russia, re-introduced by Dr. Regel. It produces slender erect stems about a foot high, with narrow lanceolate leaves and terminal flower clusters. Flower globose, of a bright azure blue colour and very distinct. This lovely plant was for a long period

lost to cultivation, but can now be easily found. It grows freely in boggy places or in cool damp borders, flowering during June and July.

G. Kurroo.—This very beautiful species is a native of the Western Himalayas, growing at an altitude of from 8000 to 10,000 feet. It was first described by Dr. Royle, by whom many of the Himalayan plants were discovered. It has a woody rootstock crowned with tufts of linear acute leaves conspicuously veined. Flower stalks axillary, 4 inches or more high, supporting solitary flowers about 2 inches long, funnel-shaped, with a brownish white tube and a bright marine-blue limb, finely spotted with white, and white throat. It is a magnificent and free-flowering species, and may be regarded as quite hardy.

G. lutea.—A strong-growing species found in the Alps, Apennines, Pyrenees, and other mountain chains of Europe. Stem 2 to 4 feet high, erect, terminating with a whorled spike of flowers. Leaves large, ovate-oblong. Flowers 1 inch across, with 5 to 6-partite corollas of a bright yellow colour. It is a showy plant, succeeding in ordinary borders, and flowering in July and August. It is from this plant that the greater part of the medicinal Gentian root is obtained.

G. Newberryi.—A scarce Rocky Mountain species, occurring at very high elevations. Stem 4 to 6 inches high, slender, erect, arising from a rosette of obovate leaves of a light shining green colour. Stem leaves linear lanceolate. Flowers about an inch long, tubular, with a spreading corolla limb of a pale sky-blue colour, white internally, and spotted with green. A most handsome little species, requiring a damp position in peat and loam.

G. Pneumonanthe.—This is found in this country as well as in other parts of Europe. Stems numerous, erect, slender, 6 to 9 inches high, with lanceolate leaves. Flowers in terminal umbels, about 1½ inch long, bell-shaped, with a five-cleft corolla limb, deep blue. It is an elegant kind, occurring in marshy places, and it thrives well in the bog garden or in damp peaty borders. The white-flowered variety alba is very scarce. It is a native of Germany, but of unfrequent occurrence even in its native habitat. The flowers are white tinged with green.

G. septemfida.—This is said to be a native of the Levant. It is closely related to *G. gelida*, with the same habit. The flowers are rather larger and deeper in colour, and it is a very showy and hardy plant, easily grown, and flowering very freely when established during July and August.

G. umbellata.—A very pretty Caucasian species. Stem 9 to 12 inches high, four-angled, terminating with dense clusters of flowers. Leaves in a rosette, oblong, red-nerved. Flowers about half an inch across, open, of a light purple colour, very numerous. This is often quoted as a perennial, but it is really nothing more than a biennial, flowering and seeding very freely the second year, then dying away. It is, however, easily raised from seed, and is a very desirable plant, well worth the trouble of occasionally raising from seed.

G. verna.—This is found in a few British localities, and very plentiful in the Alps and other mountains of Europe. It forms dense dwarf tufts of evergreen glossy foliage. Leaves ovate-oblong, rather blunt and leathery. Flowers about an inch long, tubular, with a five-partite spreading corolla limb, of a brilliant blue colour with a white throat. This is a gem among alpinists, the joy of all enthusiasts, especially when established on the rockery. It does well in rich loam, leaf soil, and sand, with a mixture of small cobbles of limestone, planted in a damp and partially shaded position.

G. Walujewi.—This is a grand species from Asiatic Russia, recently sent to this country by Dr. Regel, from whom I had the pleasure of receiving several good plants. Stems erect, a foot or more high, with lanceolate leaves and terminal flower clusters. Flowers large, erect, bell-shaped, bright yellow, spotted and marked with blue. A most distinct and scarce plant. It has a good constitution, and thrives well in ordinary soil and on the rockery, being remarkably showy when in flower.—N.

REIGATE ROSE SHOW.

ON July 1st the Reigate Association held their Rose Show under most favourable circumstances. Cloudy June was gone, and July opened with sunshine. That favoured locality had also had heavy thunder rain two days before—a most invaluable refresher to Rose bushes just now. The Show was held again, by invitation of Lady Henry Somerset, in the beautiful grounds of Reigate Priory. The exhibit was considered decidedly superior to last year. The Judges were the Rev. H. H. D'Ombraim and Messrs. George Paul and Francis. Mr. Paul brought a box of new Roses, with beautiful specimens of Duke of Teck and George Baker. Mr. Prince also contributed two boxes of the most exquisite Roses, Jean Ducher being a marvel and Madame Bravy fine. The Judges and Committee, with other friends, were as

usual most hospitably entertained at his residence by G. Baker, Esq., whose Rose garden of over a quarter of an acre presented a blaze of beauty and luxuriant growth very rarely indeed realised. Lady Henry Somerset received her friends and the members of the Association at a garden party during the afternoon, when the band of the Coldstream Guards discoursed at intervals very excellent music.

The winners, taken in order of the schedule, were as follows:—Twenty-four varieties.—Messrs. Wollarton, Cheales, and Cuthell, the box of the former containing fine specimens of Etienne Levet and Marie Baumann. Twelve varieties (seven entries).—Messrs. Haywood, Horne, and F. O. Paule. The winning box was of very high excellence, and contained splendid specimens of Duke of Teck, Louis Van Houtte, and Marquise de Castellane. It had also an Edouard Morren, a marvel of colour and symmetry, which obtained the National Rose Society's silver medal as the best Hybrid Perpetual bloom in the Show. The first prize carried with it the Ladies' Cup, which, having been obtained three successive years, becomes now the holder's property. Nine varieties.—Mr. G. Baker was first with a still more perfect box, containing magnificent blooms of La France, Marie Baumann, Baronne de Rothschild, Madame Gabriel Luizet (very largely shown this year), Hippolyte Jamain, and Annie Wood. Messrs. Wilkins and Warde won second and third. First prize, National Rose Society's gold medal. Six varieties (seven entries).—Messrs. Burnside, Mawley, and West were the prizetakers, Mr. Mawley showing a striking specimen of Lady Sheffield, of a pale, soft, cerise colour and excellent form. The prizes given by G. Baker, Esq., for four triplets, two dark and two light, were taken by Messrs. Waterlow and Cheales. In the twelve Tea class (three entries) Messrs. Baker and Waterlow were made an equal first, while Mr. Cuthell obtained a second. Mr. Baker's box contained an Anna Ollivier which obtained the silver medal as the best Tea in the Show. Mr. Waterlow's had an Innocente Pirola of great merit. Six Teas (five entries).—First Rev. A. Cheales, second E. Mawley, Esq. In the ladies' classes there was a very spirited competition for the President's prize. A single basket of Roses, all to use the same with Ferns or Grass (thirteen entries).—First Miss West, second Miss F. Thornton. Five competed for the wall basket prize, which was won by (first) Miss Smith and (second) Mrs. Ferrier. Hand bouquet.—First Mrs. Ferrier, second Miss Gosse. Buttonhole bouquet.—First Miss Cheales, second Mrs. E. Wilkins. Thirty-two shown. The first prize was taken by a bud of Narcissus surrounded with four little red Sweet Briar buds. There were other classes which were also well contested.

This increasingly large Association bids fair to hold its own in comparison with any other, and contains now, in the absence of Messrs. Baker and Jowitt, some of the most formidable of the principal all-England exhibitors.

SANGUINARIA CANADENSIS (BLOOD-ROOT).

THIS is a showy Ranunculaceous plant with a fleshy zhiomatose rootstock abounding in a red juice, hence its common name. Leaves on short petioles, ovate-cordate, variously lobed and puckered, netted with reddish veins developed freely after flowering. Flowers solitary, on slender stalks about 6 inches high, 1 to 1½ inch across, with white oblong petals; very fugacious. Notwithstanding the short-lived character of the flowers this is a pretty little plant, flowering very early in the year (March to May), and succeeds best in a damp and partially shaded position in loam, peat, leaf soil, and sand, or in ordinary light border soil. It is well suited for the lower part of the rockery among shade-loving plants. It is found in the woods of Canada and other parts of North America, and according to Morrison was cultivated in this country as early as 1680. Dillenius figures three forms of it (*Dill. Elth.* t. 252), and a good figure of it appeared in the "Botanical Magazine," pl. 162. Parkinson regarded it as a Buttercup, in which of course he was wide of the mark—*Ranunculus virginianus albus* (*Park. Theat.*, 226). It is increased by division of the rootstock, which should be done in the autumn or very early in spring, or raised from seeds, which ripen freely under cultivation, and they should be sown so soon as they are ripe.—T.

MAIDSTONE ROSE SHOW.

AMONGST those places which do honour to the Rose, and in so doing do honour to themselves, the county town of Maidstone holds a foremost place. One of our veteran Rose-growers—if, indeed, he be not the oldest amateur we have—Mr. Hollingworth, who has been the hero and the victor of a hundred fights, lives in the neighbourhood, and ever ready as he is to foster every good work, the Maidstone Rose Club has prospered, and under the management of their able and courteous Secretary, who has about as wide a knowledge of Roses as anyone I know, and whose judgment in a case of mistaken identity I should be ever quite willing to take, is likely to continue. It has ever been a favourite place of meeting for our Kentish growers, and its contests are looked forward to with no little interest.

Suffice it, then, to say that the meeting on Tuesday last was quite equal to any of its predecessors. Its prizes are not such as to tempt the outside world, and therefore the Exhibition is small in extent, but

in quality it is always excellent. Growers put forth their best efforts, and there were some grand blooms displayed. Especially was this the case with Tea Roses. The boxes of blooms shown by Capt. Knight and Mr. Biron were grand specimens of this beautiful class; while the box which obtained the prize for the best box in the Show, exhibited by Mr. Biron, contained blooms which would have done credit to any grower. Where, however, all were so good it seems almost envious to particularise, and I therefore add the names of the winning flowers in the first prizes in each class, and can only express the hope that the Society may long flourish.

I would like to take the opportunity of saying that the name of the place where the first shot was fired was not Bibbing, but Bobbing.—D., Deal.

[Only the premier winners in the different classes have been forwarded to us, and are as follows:—In class 1, Mr. R. L. Knight. Class 2, Mr. H. H. Wakeley. Class 3, Rev. H. B. Biron. These classes are not designated. In the class for twelve Teas Rev. H. B. Biron and Mr. R. L. Knight were equal firsts. Mr. Wakeley was first with eight trebles, Mr. Mount with nine varieties, single trusses; Mrs. Heawood with six varieties, Rev. H. B. Biron with six Teas, and Mr. Knight secured the first position in the class for six blooms of one variety with La France.

The silver medal of the National Rose Society was awarded to the Rev. H. B. Biron for the best box of blooms in the Show, and the bronze medal to Mr. Knight for the best Rose in the Show—Marie Rady.

In consequence of the extreme pressure on our columns we are unable to publish the names of the varieties in the winning stands, which have been obligingly sent to us, but were not received until after the whole of our space was occupied or allocated.]

OBSCURE BOTANICAL PHENOMENA.

A LECTURE on this subject was delivered on the 22nd inst. by Rev. W. H. Dallinger, F.R.S., before the Sheffield Floral and Horticultural Society, the chair being taken by H. E. Watson, Esq., Shirecliffe Hall, President of the Society.

Mr. Dallinger, who was cheered on rising, said he did not propose to himself the formality of a lecture, but rather to lay before them a series of diagrams (which were illustrated by means of the oxy-hydrogen light) of some of the more obscure and rare phenomena of vegetable life. He first drew attention in a forcible and very lucid manner to the group of putrefactive organisms with which the scientific world is becoming more and more acquainted, and which could not yet be classed with any degree of certainty with either the animal or vegetable world, but which form a connecting link between the two. After pointing out how these putrefactive organisms set free at death the elements needful to living creatures, he proceeded to illustrate and describe the development of these organisms from the germs of oval form through the oblong to the globular and matured, and their methods of reproduction. Protoplasm and its continued activity after being set free from Algæ, and the method of reproduction of the Confervæ, Desmids, &c., were described; also of the fungoid growth which attacks flies in autumn, and of its identification with the salmon disease. The Peronospora infestans, or Potato disease, was well illustrated as to its method of fertilisation and reproduction. After giving descriptive illustrations of the organisms (Protococcus pluvialis) to be found in all rain water, particularly pools that have stood for some time, with their generation and development, an interesting and highly instructive lecture was brought to a close by the passing of hearty votes of thanks to the rev. lecturer and to the chairman.—J. U. S.

HITCHIN ROSE SHOW.

JUNE 28TH.

"WITHIN twenty miles of Hitchin," the limit according to the advertisement of the district covered by the Hitchin Rose Society, and in which is included a good deal of chalk, sand, and hungry clay country, several of the great growers also, although resident in the same county, being by the limit excluded, it will hardly be surmised that a large display would attend the zealous endeavours of the Hon. Sec., the Rev. F. H. Gall, especially as there was no open class and the time full early for the locality. Nevertheless, a fine Rose day, with occasional gleams of sunshine to light up the bright flowers and the equally bright faces and dresses of the goodly array of admirers who were present in remunerative numbers, rendered the Hitchin Show a fair success, and sufficiently so, I trust, to induce the genial Hon. Sec. to renew his efforts next year on a somewhat more extended scale, and perhaps to add an open class or two.

The flowers were, on the whole, hardly so good as those shown at Hitchin in 1881, and with the exception of the stands of Messrs. E. P. Francis & Co. of Hertford; the Rev. W. H. Jackson of Stagsden, Beds; and the Rev. E. Fellowes of Wimpole, Cambs, will not need much comment. In Class 1, open to nurserymen, Messrs. Francis were the only competitors, and were fairly awarded the first prize for a very good stand of twenty-four trusses of any variety, amongst their best blooms being A. K. Williams, Marquise de Castellane, Duke of Edinburgh, Antoine Mouton, François Michelin, a very bright and good

Baron Adolphe de Rothschild, and an unusually large Paul Neyron. In the amateurs' class for twenty-four trusses a good tryst came off between Mr. Jackson and Mr. Fellowes for first and second places, Mr. Jackson being ultimately placed first by the Judges with large, fully developed, and generally smooth blooms, including Etienne Levet, Gabriel Luizet, and Charles Darwin—all three model and perfect Roses. Mr. Fellowes had smaller and rather fresher blooms, his best being Madame Lacharme (pure white and exceptionally large), Le Havre, Madame Gabriel Luizet, Baroness Rothschild, and Louis Van Houtte. Mr. U. Heathcote of Sheephall was third. For the twelve varieties in the same division Mr. Jackson was easily judged first with large and well-formed blooms; Mr. Fellowes second; and the Rev. F. Jenyns, Knebworth, third.

In the open class for twelve Teas Mr. Fellowes was first with a fine stand, Bouquet d'Or, Anna Ollivier, Catherine Mermet, and Gloire de Dijon being well represented. Mr. Jackson was here second, having a very fine Catherine Mermet, Rubens and Innocente Pirola being also noticeable.

The silver medal of N. R. A. was secured by Dr. Swaine of Arlesey Asylum for nine trusses of any variety; and the Rev. F. Gall, who is an experimental farmer of Roses on the Hitchin Irrigation Farm, not by the acre nor the thousand trees, but by the yard and the dozen, was not disheartened with the baser metal for an approximately good stand of nine varieties. A few good Roses were shown in other stands, and a passable bloom of Duchess of Connaught, H.T.; but Alfred Colomb seems this year conspicuous by its absence.—T. LAXTON, Bedford.

OUR SHRUBBERY.

SINCE I wrote the first paper (page 320) many good varieties are over for this season, but at the present time there are several worth noting. Berberis canadensis has this season been loaded with its terminal drooping racemes of bright yellow flowers. There are several varieties of B. vulgaris, all of which are extremely pretty when in flower. B. vulgaris var. iberica is noteworthy, and B. vulgaris var. purpurea is certainly worth a place in every shrubbery border if only for the purple foliage; and when in flower is a very attractive shrub. Small plants from 2 to 3 feet high look remarkably well near the margin, the foliage contrasts well with shrubs of a lighter colour. B. chinensis is also good, the young foliage being remarkably handsome. B. aristata is a very distinct species on account of its upright growth, the majority being spreading or drooping; the flowers are like B. vulgaris.

The Calycanthuses are shrubs that are not often seen in private gardens; this is to be regretted, for when in flower they are very handsome, and should be planted in the fore part of the borders. The genus Calycanthus is but a small one, embracing only four species. C. floridus (or Carolina Allspice) is most commonly met with in gardens. There are several varieties in nurseries under the names inodorus, asplenifolius, with cut leaves; bullatus, with bladder leaves; pennsylvanicus, and nanus. It is a very compact-growing species, and the flowers are very agreeably scented.

Magnolia acuminata has been in flower for two or three weeks past. The flowers of this species are not so large and showy as many of the others, being of a greenish yellow and relatively small. It is commonly known as the Cucumber Tree, the young fruit somewhat resembling small Cucumbers. Small plants 12 or 15 feet high look very handsome amongst other commoner shrubs; the foliage is large, and of a soft green colour.

The Weigelas have been all aglow with their pink, rose, and white flowers. W. rosea is too well known and appreciated to need much comment; it was the first of the group that was introduced, and is certainly the most showy. There are, however, several others that are distinct and well worth growing. Amongst them are W. amabilis, W. Lowii, and W. multiflora, a Japanese species, very distinct in its narrow tubular purplish corollas, only slightly expanded towards the mouth.

I do not remember seeing the Viburnums flowered better than they have this season, for V. Opulus or the Snowball Tree has been weighed down with its snowball-like heads of flowers, especially in the morning when the dew is on them. This must be considered as the most useful for borders, and for single specimens it is well suited also. With a little pruning every year the single specimens can be kept well within bounds. V. prunifolium is a spreading shrub, and produces large clusters of pure white flowers. V. dentatum and V. plicatum tomentosum are amongst those that are now in flower.

The Lilacs have been glorious this season, and would have lasted much longer had it not been for the rough gale recently experienced. If Lilacs are judiciously planted throughout the shrubbery nothing could look better and more pleasing than they when in flower. There are many remarkable fine varieties of the common Syringa vulgaris; and amongst the many forms now

grown I may note the following:—Dr. Lindley, having extremely large clusters of reddish lilac flowers; alba, pure white; and violacea, rubra, insignis, and rosea grandiflora. Charles X. is perhaps the most handsome of this group, being remarkable for the immense size of its panicles and the beautiful colour of its flowers. S. Josikæa is very valuable, flowering later than the varieties of S. vulgaris, thus prolonging the season till June; it produces blooms of a bluish purple and quite scentless.

Cornus sericea has been very attractive for a long time; the yellowish white flowers show to advantage amongst the green foliage. The Halesias when in flower were very showy; they have been past now some time. There are only three or four species all limited to North America. H. tetraptera or Snowdrop Tree is the most common species, and the one generally cultivated. The flowers somewhat resemble in shape and size the common Snowdrop, and are produced in April and May before the leaves have attained their full size. They look extremely handsome dotted about amongst the evergreen shrubs. What looks better than the common Mountain Ash (Pyrus aucuparia) when in flower, and in autumn weighed down with its great clusters of scarlet berries? The foliage, too, is handsome. There are several other species that are worth noting, such as P. domestica, P. Aria, &c.

We must not pass the genus Cratægus without a word of praise. C. eoccinea and C. eoccinea var. macrantha is well known, and well deserves to be planted extensively. The foliage is large and cordate on rather long petioles. The flowers are large, pure white, and produced in lateral corymbs. Not only is it very showy when in flower, but in autumn also, particularly when carrying a good crop of large bright red fruit. Very handsome specimens can be formed by planting them singly in the open. C. Oxyacantha includes many varieties, for it is from this species that has given rise to the showy varieties that now adorn our gardens, such as the double white, single and double pink, single and double scarlet, also variegated and weeping forms. The double scarlet and double pink, especially Paul's double scarlet, cannot be over-estimated for shrubbery borders. They should be planted in prominent places, so that they may always be seen when in flower. For this last month they have been one mass of flowers and last long in perfection. The single flowers appear like miniature Roses.

The Laburnum also must not be forgotten. L. vulgare or Cytisus Laburnum is a general favourite. This very popular tree is probably more familiar to many people than many of our native trees. How cheerful and pretty two or three trees look in any establishment during May and early in June! Nothing certainly can excel the beauty of the pendulous racemes of bright yellow flowers which are produced in such profusion every year. There are several varieties of the common Laburnum in cultivation, differing from the type in having larger and different coloured flowers.

The common Elder (Sambucus nigra) is by no means to be despised, although so frequently seen; when in flower it is extremely showy and sweetly scented. There are several varieties in cultivation, and one, S. nigra var. laciniata, is very handsome, the leaves being deeply cut. Then the variegated forms are still more handsome, and through the summer months they assist in making the borders very cheerful. Cotoneasters judiciously planted are very useful, and for the front of borders C. microphylla is one of the best. Not only is it very pretty when in flower, but when in fruit also. C. bacillaris and C. buxifolia grow into bushes of great size, and now covered with their pure white flowers.

Two or three Spiræas are now flowering; their neat blossoms are always welcome. S. trilobata, S. chamædrifolia, S. callosa, and S. grandiflora, or, as it is now known, Exochorda grandiflora, are all in flower. The latter, by far the best, produces racemes of pure white flowers. Many of the species of Roses are well worth planting, for they flower much earlier than the choice kinds, and as single flowers are now becoming more and more fashionable they can safely be recommended. R. rugosa is perhaps one of the largest-flowered species; it produces flowers 4 or 5 inches across. R. microphylla is very free-flowering, but not so large as the latter.

We at length come to the Philadelphus or Mock Orange. P. grandiflorus cannot be over-estimated; for planting in a mixed border or as single specimens it is equally valuable. For cutting purposes it is indeed useful; the delicious perfume is readily detected where a small spray is employed for vase-filling. There are about twelve species known in gardens, one and all of which are worth growing. The latter species and P. tomentosus are now in full beauty; following on a little later is P. Gordonianus (one of the best), and P. latifolius. Many others might be mentioned that could be employed in shrubbery borders, but

some further notes must be deferred to another communication.—W. K.

ROYAL BOTANIC SOCIETY.

JULY 5TH.

THE second summer Show of the present year at Regent's Park was in every respect a most satisfactory one, the exhibits numerous, generally of high quality, and the arrangements excellent. The Show was one of the most extensive the Society has held, but the short time at our disposal will only permit a very brief record of the principal features and the leading prizewinners.

Orchids.—A beautiful bank of these was contributed by some of the leading amateurs and nurserymen. In the former class for twelve plants Mr. Spyers, Orchid grower to Sir Trevor Lawrence, Bart., Buiford Lodge, Dorking, carried off chief honours with a particularly handsome collection, which included *Cypripedium Stonei* with over two dozen flowers, the graceful *Epidendrum nemorale* with fifteen spikes, *Vanda teres* with fifteen flowers, and fine examples of *Cypripedium barbatum nigrum*, *C. niveum*, *Aerides affine*, *Masdevallia militaris*, and *Cattleya gigas*. Mr. H. G. Catt, gardener to W. Cobb, Esq., Silverdale Lodge, Sydenham, was a close second with well-flowered specimens of *Cœlogyne pandurata*, *Oncidium ampliatus*, *Epidendrum prismatocarpum*, *Odontoglossum caudatum*, *Oncidium macranthum*, and *Cypripedium Veitchii*. Mr. Spyers was also first with six plants, closely followed by Mr. J. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, who had a fine example of *Stanhopea tigrina superba*. In both collections the plants were very healthy. In the nurserymen's class for twelve plants Mr. H. James, Castle Nursery, Norwood, won chief honours with well-flowered specimens, *Masdevallia Harryana*, *Dendrobium Jamesianum*, and several *Cattleyas* being fine. Messrs. T. Jackson & Son, Kingston, and Mr. Cypher, Cheltenham, were second and third respectively with good collections.

Store and Greenhouse Plants.—The principal class for these was that for twelve specimens, in which Mr. Cypher takes the lead with handsome examples of *Allamanda nobilis*, *Dracophyllum gracile*, *Erica Cavendishiana*, and *Azalea Souvenir de Prince Albert*. Messrs. Jackson & Son were second with neat even specimens, *Kalosanthes* Mr. Duphemis and *Rondeletia speciosa* major being the two most noteworthy in the group. Messrs. B. Peed & Son, Streatham, were third with well-flowered plants. In the class for six plants Messrs. Jackson and Son secured the first prize for vigorous well-flowered specimens; Messrs. B. Peed & Son were second, and Mr. H. James was third. In the amateurs' class for six plants Mr. J. Child won chief honours with praiseworthy specimens of *Stephanotis floribunda*, *Kalosanthes splendens*, and *Begonia Paul Masurel*, 5 feet high and 4 feet in diameter. Mr. G. Wheeler, gardener to Lady Louisa Goldsmid, St. John's Lodge, Regent's Park, was second, having very neat specimens.

Fine-foliage Plants.—The premier honours for six specimens were gained by Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, who had *Croton undulatus*, *C. Andreanus* finely coloured, and *Latania borbonica* very large; with other handsome plants. Mr. R. Butler, gardener to H. H. Gibbs, Esq., St. Dunstan's Lodge, Regent's Park, was second with healthy plants; and Mr. G. Wheeler third. Mr. Cypher was the most successful exhibitor, taking first with handsome plants, *Croton Johannis* being very notable; Mr. B. S. Williams, Upper Holloway, was a close second; Messrs. Hooper & Co., Twickenham, were third, their *Anthurium cristatum* and *Phyllotænum Lindenii* being fine. An extra prize was awarded to Mr. James. For six Palms Mr. C. Rann secured the first position with grand specimens of *Pritchardia pacifica*, *Thrinax elegans*, *Chamaerops humilis*, *Livistonia altissima*, *Phoenixophorium seychellarum*, and *Phoenix tenuis*. Mr. R. Butler followed with smaller but vigorous specimens, and Messrs. Hooper & Co. were third. An extra prize was also awarded to Mr. James.

Ferns.—Mr. C. Rann won the premier award in the class for six plants, his *Gleichenias* being extremely fine in every respect. Mr. Child was a close second, his *Davallia Mooreana*, *Gleichenia dicarpa longipinnata*, and *G. semivestita* being in a beautiful condition. Mr. G. Wheeler was third with an even collection of small plants. In the nurserymen's class for the same number of specimens Mr. B. S. Williams took first with superb examples; Mr. Cypher was second, and Mr. James third.

Pelargoniums.—The collections of these staged in competition imparted a most agreeable brightness to the display. Mr. J. Wiggins, gardener to H. Little, Esq., Hillingdon Place, was the leading exhibitor with Show and Fancy varieties in the amateurs' classes, having admirably flowered specimens in both. Mr. C. Hammond, gardener to F. Hunt, Esq., York Lodge, Stamford Hill, who followed had smaller but healthy examples. Mr. C. Turner, Slough, secured the premier prizes in the nurserymen's corresponding classes with collections of Fancy and Show varieties, the plants being superbly flowered. Mr. Cypher also staged a fine collection of the latter. For Zonals Mr. J. Catlin, gardener to Mrs. Lermite, Finchley; Mr. W. Meadmore, Romford; and Mr. Wiggins were the prizetakers in that order, the first collection being by far the best.

Tuberous Begonias.—The first prize for a collection of these was gained by Messrs. J. Laing & Co., Forest Hill, who had fine plants of *Empress of India*, Hon. Mrs. Brassey, Annie Laing, General Roberts,

Exoniensis, Reine Blanche, Hon. and Rev. J. T. Boscawen, and Mrs. Dr. Duke, all superb varieties.

Heaths were shown by Messrs. Cypher and Jackson, who were first and second respectively with neat plants.

Cut flowers were largely represented, especially the Roses, very handsome collections being staged.

Fruit.—Numerous collections of these were staged, six competitors entering the chief class for six dishes, in which Mr. Coleman of Eastnor Castle, Ledbury, won the chief position; his Black Hamburg Grapes, Bellegarde Peaches, and Elruge Nectarines were very fine. Mr. Edmonds, gardener, Bestwood Lodge, Nottingham; Mr. T. Comber, gardener to J. H. Rolls, Esq., M.P., The Hendre, Monmouth; and Mr. Wildsmith, gardener to Viscount Eversley, Heckfield, Winchfield, also showed well in this class. Melons were well shown by Mr. J. Bolton, gardener to W. Spottiswoode, Esq., Coombe Bank, Sevenoaks; Mr. W. Nash, gardener to the Duke of Beaufort, Badminton; and Mr. W. Coleman.

Mr. Wildsmith had the best basket of Grapes, Black Hamburgs finely coloured. Mr. Edmonds and Mr. Woodbridge, gardener to the Duke of Northumberland, Syon House, followed closely. In the corresponding class for white Grapes Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, Essex, and Mr. P. Feist, gardener to R. J. Ashton, Esq., Bishopgate House, Staines, were the prizetakers, the former having Canon Hall Muscat very fine, and the latter Muscat of Alexandria in good condition. For three bunches of Black Hamburgs Mr. Wildsmith won with three fine examples. Mr. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, Bishops Waltham, and Mr. J. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, followed. For three bunches of any black Grapes Mr. Hudson led with three grand bunches of Madresfield Court; Mr. Wildsmith followed with Black Prince, and Mr. Woodbridge was third with Madresfield Court. White Grapes were finely shown by Messrs. Feist, Johnston, and Woodbridge; and Mr. E. Adams, gardener to W. H. Negro, Esq., who had grand examples of Buckland Sweetwater. Peaches, Nectarines, and Strawberries were also well shown. Pine Apples were well represented, the finest fruit being an excellent example of Charlotte Rothschild from Mr. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, Liverpool, who was placed first.

Miscellaneous.—In addition to a large number of new plants handsome groups were contributed by the following:—Mr. C. Turner, Slough, had a large and tasteful group of Pelargoniums and Palms; Messrs. Laing & Co., Forest Hill, contributed a group of new Tuberous Begonias, very handsome; Messrs. J. Veitch & Sons, Chelsea, staged a large group of new and choice plants; Mr. B. S. Williams, Upper Holloway, had a group of Orchids and miscellaneous novelties; Messrs. Hooper & Co., Covent Garden, a tasteful group of Ferns and Palms; Messrs. William Paul & Son (Waltham Cross) and the Cranstoun Nursery Company had fine collections of Rose blooms; Mr. G. Wheeler a group of flowering and fine-foliage plants; Messrs. Osborn and Sons, Fulham, sent a fine collection of hardy plants; and Messrs. Barr & Son, Covent Garden, had a similarly beautiful group in the corridor to that staged at Kensington on the previous day.



HARDY FRUIT GARDEN.

It is of the greatest importance to keep fruit trees free from insects, which during the recent unfavourable weather has not been an easy task. The removal of the foreright and other unnecessary shoots upon trained trees, as advised in former calendars, will have freed the trees to a great extent, as such shoots are generally most infested with aphides and caterpillars, and these should be collected and burned. The removal of the spray will permit the more ready application of an insecticide, and the thorough cleansing of the foliage with water from the garden engine. Cherry trees on walls are in too many instances much infested with the black aphides, which are difficult to destroy, as tobacco water or other liquid seems quite harmless to them. It is necessary to treat the shoots infested individually by rubbing them with the fingers frequently dipped in strong tobacco water or approved insecticide. This should be followed in the course of half an hour with a thorough application of an insecticide, which will in most instances effect a clearance, being followed the next day by a forcible syringing from a powerful engine. As soon as the trees are well cleansed the leading shoots and necessary young wood should be nailed, tied, or otherwise secured in position, to be followed by another washing with the garden

engine, and repeated as found needful. The long-continued dry weather and prevalence of east winds has been exceedingly favourable to the leaf-rolling caterpillars on Apple, Pear, and Nut bushes, and for these careful handpicking is the only effectual remedy.

Vines trained to walls in the open air should now be closely nailed or tied-in. Fig trees on walls must have similar attention, removing all superfluous shoots, pinching out the points of those retained at the fifth or sixth joint, except those of the leading shoots. Many outdoor fruits are now ripening, and should be protected by nets from the ravages of birds. Ground may be prepared for new plantations of Strawberries by being well manured and trenched, or at least as deeply dug as the soil admits. We have before alluded to the desirableness of layering a sufficient number of runners in small pots for the purpose, but where this is inconvenient the runners may be allowed to root into the soil, from which they should when well rooted be carefully raised with a trowel, and if planted and attended to until established they will afford a good crop another season.

FRUIT HOUSES.

Peaches and Nectarines.—The fruit being all gathered in the earliest house, attend still to syringing the trees forcibly in the afternoon, and the inside borders should not on any account be allowed to become dry, and in the case of weakly trees some liquid manure will greatly assist them. Still attend to pinching or removing the laterals and all superfluous growth in addition to the shoots that have borne fruit this season. When the fruit buds are fairly well plumped the roof lights can be removed, which, by exposing the trees and borders to the rain, will greatly benefit the trees and prevent over-development of the buds—a source of trouble in trees sometimes subjected to a course of early forcing; but where the roof lights are fixed ventilate to the fullest extent, and syringe occasionally, not allowing the trees to become dry at the roots. In the house started early in the year the fruit has been removed from some varieties, and syringing must be resorted to, a thorough watering being given at the roots, stopping the laterals, cutting out the wood that has borne fruit—not being extensions—and thinning out the growths for next season where too thickly placed. Any gross shoots may be stopped, and growths originated thereby pinched to one joint. In later houses where the fruit is swelling after stoning syringe vigorously to keep red spider under, and to secure the fruit swelling to a good size close early with plenty of sun heat, but ventilate early in the day to prevent scorching. Let there be no lack of moisture in the borders, and keep the shoots tied down as they advance, removing any that are superfluous, pinching-in to one joint the laterals on the strong shoots, and stopping any that are unduly vigorous. Feed those swelling off heavy crops of fruit with weak liquid manure, mulching the surface of the borders with short manure.

Figs.—The fruit from the planted-out trees in the earliest house will be all gathered, and the treatment as advised in our last calendar should now be continued, under which conditions the second crop will advance rapidly; and as there is sure to be a plentiful supply of fruit, it should be freely thinned, reserving those which are nearest the base of the shoots. Tie the growths to the trellis as they advance, stop those not required for extension. Syringe freely once or twice a day, as red spider is unusually prevalent this season, and will soon establish itself if syringing is neglected. Do not allow the trees to suffer for want of water; those in pots or planted out in borders of limited extent will require it frequently and copiously, and should on every occasion have a little guano mixed with it. In houses where crops are ripening maintain constantly a free circulation of warm dry air to ensure their ripening. Trees in pots required for early forcing must have their requirements in watering with weak liquid manure on every occasion regularly attended to, and be syringed occasionally.

FLOWER GARDEN.

Favoured by the recent rains bedding plants are at last making progress, and to aid them in filling the beds as quickly as possible all blooms should for the present be removed as they continue to appear. Verbenas, Petunias, &c., will require frequent attention in regulating and pegging. In dry seasons mulching flower beds is of great benefit, and is especially to be advised in light soils from lessening

the necessity for watering. Subtropical plants can scarcely have too much water if the weather be warm; they should be staked and tied as they advance in growth. Hollyhocks and Dahlias may be treated similarly. Carnations and Pinks must be neatly secured to stakes, and the propagation by layers and pipings can be pushed forward, making choice of an old spent hotbed on which to place the handlights, inserting the cuttings in sharp sandy loam, keeping them well shaded from the sun, and sprinkling them occasionally. Cuttings of Roses root freely at this season, provided they are taken from well-ripened wood, giving them the same treatment as advised for Carnations. Briars and other stocks will soon be sufficiently forward for budding, making choice of such buds as are on wood that has just borne flowers, as successful budding depends greatly on selecting sound mature buds; and in extracting the wood great care should be exercised, so that the bark is not bent too sharply or bruised. As Roses of the Hybrid Perpetual class cease blooming they should be shortened back, and every means taken to insure a free growth by mulching and watering. Climbing Roses must have the old flowering wood cut out, and the young growth laid in for next year's flowering.

PLANT HOUSES.

Greenhouses.—Usually these structures are kept much too dry during the summer months. In most cases no air moisture is provided but what results from the evaporation of the small quantity of water that escapes from the pots in watering, whereas the whole of the space inside the houses should be kept during the summer not merely sprinkled but wet, so that in sunny weather there is a continuous healthy moisture rising amongst the plants. Zonal Pelargoniums for winter flowering in a little heat should at once be prepared. Plants struck last autumn are most suitable, but early spring-struck cuttings are also useful. They should at once be placed in 6-inch pots in good loam, with a little sand and about a sixth of well decayed manure, potting as firmly as possible. Plunge, or at least stand, the pots on ashes in the full sun outdoors, stopping the plants so as to keep them in shape, and remove all flower buds, so that all the energies of the plants may be directed to making growth. Some of the best varieties for this purpose are Vesuvius, White Vesuvius, Tip Top, Eclipse, Commander-in-Chief, Beatrix, H. M. Pollett, Kleon, Mrs. Whiteley, Alonzo, Polyphemus, Miss Gladstone, Madonna, and Marguerite Ponton, which are all single. In doubles F. V. Raspail, Wonderful, Guillon Mangilli, Alba Perfecta, and Mrs. Chas. Pearce.



ARTIFICIAL SWARMING.

IN the Journal for June 15th, page 501, "CLIFTON" says he has lost confidence in Mr. Pettigrew's teachings on this subject, and further that he does not intend trying the plan again. I, like "CLIFTON," failed in my first attempt at artificial swarming; but with the use of a cool blast smoker with some dry decayed wood in it I lighted a few puffs from which quieted the bees, the practice was a perfect success. The same practice I have followed several times during the season with equal results. It has been said by some writers we should place the fresh skep where the old one stood after artificially swarming; but, like Mr. Pettigrew, I do not think that the best plan, as there is great danger of the whole of the bees leaving the old skep or hive and joining the new one. So much are they guided by familiar landmarks, that when those that were left in the hive fly into the air they will most likely settle on their old spot, and I have seen an instance where the whole of the bees have left their former abode, with its honey, comb, and young brood, and joined the other hive. Thus, as Mr. Pettigrew says, it is best to stand each lot right and left of where they formerly stood, if only a few feet.

I have some large bar-framed hives, and am anxious for the bees to fill the supers over them this season. When the swarms are not very strong when hived they seem to take nearly the whole of the season to fill the body of the hive. I have heard of people joining two or more swarms together, and once made an

attempt at the same; but it was evident from the dead which lay outside the hive in which they were put that it was not a profitable or desirable practice to be repeated. May I ask Mr. Pettigrew or any other of your able correspondents if they could give me the information sought for through the pages of this Journal—viz., making the bees smell alike, so that they may be successfully joined, so that by having them strong they would be more likely to fill my sections?—C. WARDEN, *Clarendon*.

THE NORFOLK BEE-KEEPERS' ASSOCIATION.

ON Thursday last this Association held its first annual Exhibition of bees, hives, and honey in the picturesque grounds of J. B. Coaks, Esq., at Thorpe Hamlet, a suburb of Norwich which may justly be termed the Richmond of Norfolk. A glorious June day, together with the attraction of the Norfolk and Norwich Horticultural Society's Show, drew together a large assembly, among whom were many of the *élite* of the county and city. Manipulations, the driving competition, and the short lectures delivered at intervals in the bee tent appeared to be the most popular of the day's proceedings, judging, at least, from the constant crowds pressing for admission. If we may indulge in vaticination we forecast for the Norfolk Bee-keepers' Association a bright future under the energetic guidance of its Secretary and local Committee, and expect before long to see it take rank amongst the foremost of our county associations.

The Rev. George Raynor, deputed by the British Association, assisted by the Rev. Blake Humfrey and three other members of Committee, awarded the prizes.

Amongst the foreign bees exhibited in uncomb and observatory hives we noticed a fine stock of Carniolian bees exhibited by Mr. Blow, which obtained the highest honours. In hives Mr. Blake of Dallinghoe, Suffolk, was placed first with a hive which we believe has frequently obtained similar notice at other shows, Mr. Blow taking second with one of similar construction. We observed, also, in this department several of the old straw skeps to which a most praiseworthy adaptation of the modern system of sectional supers had been made, thus instructing our cottage population in the more modern, humane, and lucrative system of securing the produce of their bees, and procuring honey in the purest and most saleable form. The three prizes offered by J. J. Colman, Esq., M.P., drew forth three competitors for the "best collection of hives, extractors, and other bee-keepers' appliances," whose select and extensive collections proved a great feature of the Show. Space would fail us to enter more fully into particulars; we therefore close our short summary by appending the prize list, merely remarking that the honey exhibited, both extracted and comb, although small in quantity—doubtless on account of the early season at which the Show was held—was fine in quality.

BEES.—The best stock of Ligurian or other foreign bees: 1, T. Blow, Herts; 2, S. Barge, Yarmouth; 3, T. Sells, Stamford. The best stock of English bees: 1, T. Blow; 2, T. Sells.

HIVES.—The best and most complete hive, on the moveable-comb principle, including covering, stand, floor-board, and facilities for storing surplus honey: 1, Andrew Blake, Wickham Market; 2, T. Blow; 3, Andrew Blake. The best and most complete hive, on the moveable comb principle, for cottagers' use, including covering, floor-board, and facilities for storing honey, price not to exceed 10s.: 1, T. Blow; 2, A. Blake; 3, Abbott Bros., Southall. The best straw hive, with facilities for storing comb honey in sections: 1, Rev. J. L. Sisson; 2, S. Barge; 3, T. Sells. The best frame hive for general use, the work of an amateur or cottager, being members of the Association: The Rev. A. J. Bellman and J. N. Eldridge, equal 2nd. The neatest and best supers, complete with racks and sections, for producing honey in the comb in the most saleable form: 1, T. Sells; 2, A. Blake; 3, T. Blow. The best and most complete collection of hives, extractors, smokers, feeders, and bee furniture, no two articles alike (prizes given by J. J. Colman, Esq., M.P.): 1, T. Blow; 2, S. Barge; 3, Abbott Bros. Any invention calculated, in the opinion of the Judges, to advance the culture of bees: T. Blow, for a feeder.

HONEY.—The best exhibition of super honey from one apiary: 2, T. Sells; 3, James Turner, Mulbarton. The best twelve 2-lb. sections of honey in the comb: 1, J. N. Eldridge; 2, J. Turner. The best twenty-four 1-lb. sections of honey in the comb: 1, Rev. J. Blake-Humfrey. The best twelve 2-lb. glass jars of extracted honey: 1, Rev. R. A. White, Ipswich; 2, F. T. Chevallier, Bungay. The best twelve 1-lb. glass jars of extracted honey: 1, R. Howes, Buckenham. The largest and best collection of extracted honey in glass jars: 1, T. Sells.

COTTAGERS' CLASS (for members of the Association residing in the county).—The best exhibition of honey in the comb, taken from one hive without destroying the bees (prizes given by the Very Rev. the Dean of Norwich): 1, and the silver medal of the British Bee-keepers' Association, Robert Moore, Norwich; 2, and bronze medal of the British Bee-keepers' Association, Robert Howes.

DRIVING COMPETITION.—The competitor who in the neatest, quickest, and most complete manner drove out the bees from a straw skep, captured and exhibited the queen: T. Blow.

Besides the above competitive classes there was an auxiliary department for the sale of honey, &c.

A PROFESSOR OF BEE-KEEPING.

IN a recent article in the Journal (page 522) Mr. Pettigrew urges the advisability of appointing two Professors of Apiculture (or bee-keeping, as some would say), one for England, one for Scotland, and suggests that Mr. Frank Cheshire would do well for the former, Mr. Raitt for the latter. Having brought a somewhat similar proposal before the Committee of the British Bee-

keepers' Association, and subsequently before the annual meeting of the members, I may perhaps be permitted to say that the importance of this matter has not been overlooked by the Association, and that as soon as an opportunity occurs another effort will be made to secure some such an appointment as Mr. Pettigrew desires. Both the Committee and the annual meeting gave their cordial support to the proposition when laid before them two years ago, but the Lord President of the Council of Education, although much interested in the facts that we placed before him, did not think that the time had arrived for an appointment to be made. The authorities at South Kensington invited Mr. Cheshire to lecture before some of their students, and I hope with Mr. Pettigrew that the time may soon come when still greater encouragement will be given us. He may rest assured that the British Bee-keepers' Association will do all they can to forward the object he has in view.—E. BARTRUM, *Berkhamstead, Herts.*

TRADE CATALOGUES RECEIVED.

E. H. Krelage & Son, Haarlem.—*Who'sale Catalogue of Plants.*
S. Bolton, Nelson, New Zealand.—*Catalogue of Trees and Shrubs.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Sempervivums Decaying (C. A. J.).—The plants need a position where they can have more sun, as at present the leaves are unable to elaborate and assimilate the moisture that is supplied by the roots.

Vines Unfruitful (W. A. B.).—All you can do is to stop the growths and regulate the laterals so that the foliage is directly exposed to the light, admitting air freely yet judiciously, and employing fire heat in the autumn, if that is needed, for ripening the wood.

Orange Culture in the Tropics (E. Holland).—We know of no work which gives better information on Orange culture, "as practised on a large scale in those countries suitable for the growth of the trees" and ripening of the fruit than Simmonds' "Tropical Agriculture." Spon, Charing Cross, price 21s.

Climbers and Plants for Conservatory (Essex).—The climbers being required for pillars the following are advised:—*Rhynchospermum jasmynoides*, *Lapageria rosea*, *L. alba*, *Plumbago capensis*, *Clianthus magnificus*, *Proustia pyrifolia*, *Habrothamnus elegans*, *Sollya heterophylla*, *Jasminum de Poiteau*, and *Aecia Ricana*. These will take more time to cover the pillars and arches than rapid-growing climbers, such as *Passiflora Comte Nesselrode*, *P. Empress Eugénie*, *Tacsonia insignis*, *T. Van-Volxemi*, *Bignonia Chirere*, *B. jasmynoides*, *Clematis indivisa*, *C. indivisa lobata*, and such *Roses* as *Gloire de Dijon*, *Maréchal Niel*, &c. We give the two lists, but recommend the first. Of plants for the beds, in addition to two *Camellias* and the *Tree Fern*, we should have another *Fern* to match the one you have, few doing better than *Dicksonia antaretica*, with *Dracæna australis* and *D. indivisa*, *Chamærops Fortunei*, *Seafortia elegans*, *Phoenix reclinata*, *Corypha australis*, and two or more *Camellias*, or *Rhododendron Nuttallii*, *R. Countess of Haddington*, and *R. formosum*.

Vines not Satisfactory (Inquirer).—The Grapes sent are not shanked but in a state of decay, induced unquestionably by the imperfect elaboration of the sap, consequent on the roots being in a wet and rich border, and the temperature of the house being kept too low, with a deficiency in the ventilation. Probably the heavy cold rains have increased the injury. For the present we advise a little ventilation night and day at the top of the house, to be increased when the weather is favourable early in the day, maintaining the temperature at 70° to 75° by artificial means, falling 5° at night, allowing an advance from sun heat to 85° or 90°, keeping the atmosphere dry and the laterals closely pinched. In the autumn examine the drainage, and if imperfect rectify it and give a good dressing of lime, and point in as deeply as the roots admit. If the roots are deep remove the surface soil, lift them, and lay them in fresh material nearer the surface.

London Market Gardens (C. B.).—You do not sufficiently explain your object. Mr. Warren of Isleworth, as has recently been published in the Journal, grows fruit and vegetables largely. Mr. Steel of Fulham is also a great vegetable grower. Mr. Ladds of Bexley Heath grows plants extensively; so do, amongst others, Messrs. Hayes of Edmonton, Reeves of Acton, and Hawkins and Bennett of Twickenham. We know of no method of gaining admittance to the experimental farm to which you allude otherwise than by writing to the manager.

Spiræa japonica (P. C.).—We are not surprised that you are disappointed by the disqualification of such an excellently cultivated and effective plant; and

in all probability had it been permitted to rank as a greenhouse plant, as it had been grown in a pot under glass, and the collection of which it formed a part had won a prize, the award would not have been seriously questioned. Still as the plant is as hardy as a *Delphinium* or a *Pyrethrum* the judges were justified in their decision, against which you raise no objection, but were simply taken by surprise. This *Spiræa* being perfectly hardy cannot be properly classed as either a stove or a greenhouse plant, although it does good service in a conservatory.

Melons not Setting (J. K. D.).—There is no doubt the soil has been too moist at the roots of the plants, and the atmosphere excessively moist and cold, with probably a too crowded condition of the growths. The remedy is to cease watering, or only give sufficient to prevent flagging, and be careful to wet the surface of the bed and the foliage of the plants as little as possible. If the growth is crowded thin it well. Keep the bottom heat at 80° to 85°, and the top heat 70° to 75° at night, with 10° to 15° rise in the daytime from sun heat. Allow a little ventilation constantly day and night, and ventilate freely when the weather is favourable. When half a dozen blossoms on a plant are fully expanded fertilise them, and continue daily to impregnate the fresh blossoms as they expand, stopping the shoots bearing the blossoms one joint above the fruit at the time of impregnation. When four to six fruit on a plant are set and swelling freely remove the others and earth-up the roots, supplying water copiously and as often as needed, creating a genial condition of the atmosphere by damping on warm afternoons, and close early.

Various (F. J.).—It is not easy to give a categorical reply to your first question. We can only say that for the majority of plants we should prefer slate to open latticework stages. The former are more durable than the latter, and the plants are less liable to suffer from over-dryness in summer than on dry open stages. In such matters, however, very much depends on management—that is to say, some cultivators grow plants much better on wood stages than others do on slate slabs, and if cost is no object you may safely adopt these. Loam may be stored in the open air, provided it is prevented being saturated by rain on the one hand or unduly dried by the sun on the other; but do not store it under trees, or it will be permeated with their roots and impoverished. *Bouvardias* are well adapted for a cool conservatory after they have been well grown in a light structure, having an intermediate temperature in winter and spring—viz., 50° to 55°. Cool frames are suitable in summer. The plants cannot be well grown in a house in which they are some distance from the glass or shaded by larger plants. A compost of two-thirds loam, the remaining third peat, leaf soil and wood ashes, with sand to keep the soil porous, will be suitable for most softwooded greenhouse plants; but for many, indeed we may say most, that are naturally of free growth, such as *Pelargoniums* and *Chrysanthemums*, peat is not needed.

Vine Leaves Scorched (Lincoln).—The foliage indicates that the house has been kept closed too long in the morning of a bright day, and then the ventilators opened too wide at once to lower the temperature. In such a case the evaporation from the foliage is always great, and tender leaves are browned at the edges—scorched or chilled. If sulphur has not been burnt in the house, the above is, we think, the cause of injury.

Determining the Solidity of Conical Heaps (An Old Gardener).—If the heap you wish to measure is a true cone, the following method will be applicable:—Multiply the area of the base by one-third part of the perpendicular height, and the product will be the solidity. But if, as your diagram seems to indicate, it is the frustum or basal portion of a cone, you can find the contents in this way: To the product of the diameters of the two ends add the sum of their squares; then this sum being multiplied by the height and again by 0.2618 will give the solidity. Another method to obtain the same result is the following—Multiply the areas of the two ends together, and to the square root of the product add the two areas; that sum multiplied by one-third of the perpendicular height will be the solidity of the frustum.

Nectarines Unsatisfactory (H. D. Hunt).—If the trees are in the open air we believe the fruit sustained injury by frost. The sap vessels and tissue were ruptured, and it is not unlikely they will commence growing as the fruit approaches maturity. The Shallots have been attacked with the maggot. There is no cure now. Next year you must plant on another site, dressing the ground liberally with soot and lime previously.

The Onion Maggot (J. Webster).—In our experience the Onion maggot may be to a great extent prevented, but when once the grubs have penetrated into the centres of the plants, they cannot be destroyed without destroying the crop also. Preventive measures are twofold—using soot, lime, and salt freely just before sowing the seed, and then sowing in drills which have been made 3 inches deep and nearly filled with wood ashes, covering the seed also with this material. In gardens where the Onion fly abounds it is wise to adopt the above precautions, and especially to have the Onion bed as far distant as possible from the site on where a previous crop has been injured. The next, and we consider the most effectual means of saving the crop, is when the plants are growing, and immediately they are attacked with the fly. Close observation and prompt action are requisite in this matter. Had you examined the plants closely during the morning of bright days in May and early June, you would have seen a number of white specks on them like particles of pollen, and if you had examined these through a good pocket magnifier you would have found they were clusters of eggs, which would, as seen, resemble ants' eggs, but more pointed. The Onion fly, *Anthomyia ceporum*, deposits these in thousands, and from these the maggots emerge that destroy the crop. As these eggs, as we have carefully observed, do not adhere to the leaves by any glutinous substance they are easily washed off. In fact they may be shaken off or blown off if needed, but the best plan is to dislodge them with the syringe and forcible applications of paraffin and soapsuds—a small wineglassful of the former well mixed in a gallon of the latter. One good syringing daily so long as the eggs are being deposited will, as we have proved to our own satisfaction, save a crop of Onions. If application of paraffin and soapsuds are not effectual in your case now, you may conclude you did not write to us soon enough for information. We know of no better remedy, but shall be glad to publish the experience of those who have been successful in extirpating the destructive pest in question.

Empress Eugénie Strawberry (J. S. G.).—The examples you have sent of trusses with fruit in various stages, also foliage, enable us to say that the above name is correct, and it follows that the variety which you grow under the same name, the fruit of which "differs materially" in character, is not *Empress Eugénie*. It is probably better, as we do not consider *Empress Eugénie* remarkable for good quality. If you compare fruit with the following description of this Strawberry in the "Fruit Manual" you will be satisfied the name is correct:—"Fruit very large, irregular, angular, furrowed, and uneven; skin of a deep red colour, becoming almost black when highly ripened; seeds small, not deeply embedded; flesh red throughout, hollow at the core, tender, very juicy, and briskly flavoured."

Plum Trees Dying (H. Mount).—We have many times, and in different places, observed the foliage of Plum trees assume a silvery appearance, and the branches afterwards die. We have also noticed that the occurrence has been most frequent when bright and dry days have followed a term of wet and dull weather. We have further found that the trees which have suffered the most were those with apparently fine healthy foliage, and that the leaves after the attack were harsh and dry like smooth paper. As we could not find any trace of insects and mildew to account for the condition of the leaves we attributed the cause of injury to sudden and extreme transpiration—a drying-up of the sap, and the consequent separation of the cuticle from the substance of the leaf, and the cuticle being transparent, must necessarily when raised impart to the leaf a silvery appearance. This is in substance what we have more than once stated; but with the object of gaining further information we submitted some of the leaves you sent to Mr. Worthington G. Smith, who is an adept in detecting under the microscope, and delineating things hidden from ordinary observers. His reply is in accordance with our own views on the subject. He found the cuticle raised from the leaves and much torn, only adhering to the veins. He attributes this to the substance of the leaf shrinking or drying up, which seems to show that at one period of growth there was a too rapid formation of leaves, and then the growth ceased, and the too much distended material shrunk back and tore itself away from the cuticle, and at the same time made the wrinkles. This is all we are able to say at present on this serious change to which Plums, and occasionally Peaches and Laurels, are liable, as we regret to say we know of no practical remedy.

The Pear-tree Slug (J. Adams).—We know well what you mean, and you are acting wisely by endeavouring to prevent the increase of this destructive enemy of the Pear. You do not say that it has attacked your trees this year, but refer to its ravages during past seasons. We have never seen trees attacked until August. In reference to this insect Curtis, under the head



Fig. 4.—*Tenthredo adumbrata* (larva state).

of *Tenthredo adumbrata*, says—"Arboriculturists are familiar with a slimy black larva like a little leech, which appears as if glued to the leaves of Pear trees, and which is of very common occurrence in fruit gardens in September and October. From its form and appearance Réaumur called it the slug-worm. At the end of autumn, when it has attained its full size, it somewhat resembles a small tadpole. It has twenty feet, which, however, cannot be seen without dislodging it from the leaf. It does not begin at the edges of the Pear leaf, but gnaws away the parenchyma in the middle, leaving the smallest veins and the epidermis of the under side untouched, so that the leaves attacked are left like the finest lace (see fig. 4). After four times casting its skin it changes to an orange yellow colour, comes down from the tree, and forms a cocoon from particles of soil bound together by a few silken threads. The perfect insect (see fig. 5), according to Hartig, is $2\frac{1}{4}$ lines long, smooth, black, and shining with the horns almost as long as the abdomen; the legs are black, the joints and thighs reddish brown, the wings obscure." The grub is frequently very destructive to wall trees. It appears on Pear trees when the fruit are from one half to two-thirds of their full size, and by destroying the parenchyma of the leaves it prevents the elaboration of the sap, brings growth to a standstill, and the Pears, instead of swelling, drop. Some authors consider that the slug-worm of Réaumur produces the *Tenthredo Cerasi* of Linnaeus; others consider it to belong to the *Tenthredo Æthiops* of Fabricius. The investigations of Gorsky, Westwood, and M. De-



Fig. 5.—*Tenthredo adumbrata* (perfect insect).

lacour have set the question at rest. They have shown that there are several slug-like grubs, which are developed into insects belonging to distinct species, and that the *T. Cerasi* of Linnaeus does not form its cocoon in the ground, but amongst the leaves of the Cherry. The best remedy is to dust the trees with quicklime as soon as the slimy grub is perceived, and to repeat the dusting as often as may be necessary.

Learning Gardening (Wild Rose).—We fear your aspirations are greater than your advantages. You cannot learn plant-growing for exhibition satisfactorily from any books, and we think you will experience great difficulty in gaining the information you need in nurseries. In fact, you would not find it easy to get an appointment in a good establishment. There are hundreds of

persons having far more experience than yourself and much better educated who are unable to get into a nursery and learn what you wish to learn there. A man cannot become competent in the various branches of gardening by working in a nursery for a year or two and reading books, especially if he, like yourself, "cannot lose much time to learn." So long as you entertain such an erroneous notion as losing time in learning you will certainly never succeed in your object. By learning you will be gaining, not losing, time; and it would have been a decided advantage to you had you not been afraid of losing time by learning to write. Such a badly written letter (bad alike in penmanship, spelling, and expression) as you have sent indicates that you have little aptitude for self-improvement. No gentleman would entertain an application from a gardener who wrote him such a letter as you have sent to us. Yet you are twenty-three years of age! If you have had good health during the past ten years you have wasted valuable time that you might have utilised. We cannot hold out any hope that you will obtain a good position as a gardener, since so many able and well-educated men fail to do so, and you might probably do better by seeking some other occupation for obtaining a livelihood. We should not have written so fully on your case for yourself alone, but there are other young men, far too many of them, who have been negligent in self-improvement, yet think they can easily "pick up gardening" and obtain good positions. We warn them against indulging in such visions, incurring disappointment and bringing discredit on a craft in which so many competent, intelligent, well-educated, and in all respects worthy men are struggling to live. To return to yourself, you ask if Thompson's "Gardener's Assistant" is a good book. It is a very good and comprehensive work on gardening, and can be obtained through a bookseller, price 35s. If you want a less costly, yet very useful, work, the "Cottage Gardener's Dictionary" will be suitable, and can be had post free from this office for 8s. 3d. A book (or, as you write it, a "hok") still more cheap and very serviceable is our "Garden Manual," price 1s. 9d. post free.

Names of Plants (R. B. T.).—Both specimens arrived in a greatly withered condition. The one with white flowers is *Deutzia scabra*; the other is one of the dwarf *Phloxes*, but we cannot determine it without flowers. (T. H.).—1, *Achillea Millefolium*; 2, *Hoya bella*; 3, *Agapanthus umbellatus*; 4, *Euphorbia jacquiniædora*; 5, *Insufficient*. (W. T.).—1, *Deutzia scabra*, fl. pl.; 2, *Calycanthus floridus*; 3, *Spiraea callosa*; 4, *Spiraea opulifolia*; 5, a *Ceanothus*, but we cannot determine it without flowers. (W. Cranwick).—1, *Cynosurus cristatus*; 2, *Poa trivialis*; 3, *Aira cæspitosa*; 4, *Dactylis glomerata*; 5, *Holcus lanatus*.

COVENT GARDEN MARKET.—JULY 5TH.

OUR market has been well supplied, and clearances made at last week's quotations. Soft fruit is reaching us in good condition and supply. Trade brisk.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Grapes	lb.	1 6 to 4 0
Apricots.....	box	1 6 2 0	Lemons.....	case	15 0 20 0
Ditto	"	1 0 2 0	Melons	each	2 0 4 0
Cherries.....	½ sieve	6 0 12 0	Nectarines..	dozen	4 0 12 0
Chestnuts.....	bushel	0 0 0 0	Oranges	100	4 0 6 0
Currants, Black..	½ sieve	5 6 6 0	Peaches	dozen	4 0 12 0
" Red.....	½ sieve	4 6 5 6	Pears, kitchen..	dozen	0 0 0 0
Figs.....	dozen	4 0 6 0	dessert	dozen	0 0 0 0
Filberts.....	lb.	0 0 0 0	Pine Apples, English	lb.	3 0 4 0
Cobs.....	100 lb.	45 0 50 0	Strawberries	lb.	0 6 1 0
Gooseberries	½ sieve	2 6 0 0	Walnuts	bushel	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Asparagus.....	bundle	3 0 6 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	100	1 3 1 6	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	" pickling	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes	cwt.	10 0 0 0
Capsicums.....	100	1 6 2 0	" Kidney.....	cwt.	10 0 14 0
Carrots, new.....	bunch	0 6 1 0	Radishes....	doz. bunches	1 0 0 6
Cauliflowers.....	dozen	2 0 3 0	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts....doz.	bunches	2 0 4 0	Scorzonera	bundle	1 6 0 0
Cucumbers.....	each	0 4 0 6	Seakale	basket	0 0 0 0
Endive.....	dozen	1 0 2 0	Shallots	lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 6
Garlic.....	lb.	0 6 0 0	Tomatoes.....	lb.	0 6 0 8
Herbs.....	bunch	0 2 0 0	Turnips, new.....	bunch	0 6 0 0
Leeks.....	bunch	0 3 0 4			



POULTRY AND PIGEON CHRONICLE.

THE SHORTHORNED BREED OF CATTLE.

(Continued from page 547, last vol.)

OUR notes and references to the celebrated Shorthorn breeders of former times will not be complete without introducing the name of the Booth family, who began cattle-breeding at Studley about 1790 with Teeswaters, a breed of cattle of great substance. The fragments of history on which their origin rests are somewhat shadowy and uncertain. Some were found who contended they must have been of Dutch origin, or being only another type of the Holderness; be this as it may, the Teeswaters' capability

had suggested itself to the Brothers Colling. And with regard to their intelligence and fondness for the art of cattle-breeding, the Brothers Booth were, in a later period, what the Brothers Colling were in earlier days. It is likewise certain that no blood has been more widely spread than that of cattle bred by the Booths of Warlaby and Killiby, these being the names of the districts on which their herds of improved Shorthorns were reared respectively, and throughout the United Kingdom no blood commanded a finer bull-hiring trade; and it was from Buttercup, a daughter of Barmpton Rose, and crossed with Booth's Jeweller (10,354), that Butterfly sprang, the chief foundress, with Frederick (11,489) of the Towneley herd, whose victories in the store and fat shows combined are wholly without parallel.

For a period of more than twenty years previous to the year 1865 a large number of Shorthorn bulls were annually to be seen at the Dublin Easter Show. The far greater part of them were of Booth blood. France had been a customer for several years, and the Emperor had not only hired bulls from Warlaby, but purchased thirty females at upwards of a hundred guineas each. Bulls having been gradually distributed into many departments of France, the result of this was noticed in the Battersea meeting of the Royal Society in 1862, especially the effect of the Shorthorn blood upon the cattle from Poissy. Germany has not given such high prices, and has cared less for the best blood. The King of Wurtemburgh's agents, however, were in the market as far back as 1824, and the Emperors of Russia and Austria in later years. Lately Sweden came out more spiritedly than she had ever done before, and Spain had bought some of the best Shorthorn bulls to put better points on the Andalusian cattle. The King of Sardinia had also been a purchaser, and so had the King of Holland, whose agents more especially obtained bulls from Yorkshire. These observations apply to the period before 1865. It was, however, to America that breeders had generally looked for their most spirited customers, and this was the case as far back as 1797, when a Favourite (252) cow was sent over, and, returning at the end of thirteen years, became the foundress of the Cambridge Roses. It is also recorded that the first and second Grand Dukes crossed the Atlantic with one thousand guineas on their heads, and it was the rivalry of American buyers which gave such a fillip to prices at the sale of Lord Ducie's cattle at Tortworth in 1853; for here the Americans threw all previous speculation into the shade by giving seven hundred guineas for Duchess 66th. Our own colonies had not been laggards. Van Dieman's Land was the first spot which gave Shorthorns a welcome at the antipodes when it imported bulls in the year 1831. The Boldens introduced them at Port Phillip nine years later.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This is still divided between drawing the mowing machine, the tedding machine, horse rake, &c., also the carting of hay to the stack, and the odd horse or mule, as the case may be, will work the elevator at the rick. A capital implement is the elevator, which saves the men from the severest work they used to have to perform—viz., the unloading of hay from the waggons or carts on to the rick, especially when the stack was above half made. The other work, which will now be combined or alternated with machinery attendant upon hay-making, is the preparations for sowing the Turnip seeds or drilling the seed with manures; but on many farms we noticed that the land was very foul with couch in the early spring, therefore in various instances where the seeding for Turnips has not yet been done, much labour is still required before all the land can be seeded. Stetching and planting Cabbages and Kohl Rabi will still be continued, but should now be finished, the sooner the better. Upon the strong land farms much land is still foul, and requiring much severe labour by steam culture or otherwise before it can be called a clean fallow for Wheat; and when the horses cannot work on the Turnip land, or after the Turnip lain has been all seeded, the cross ploughings may be continued with advantage. Should the weather prove dry the land should be kept rough, and worked with Howard's self-

lifting drag harrow, so that in case the weather should continue dry enough the land may be thoroughly aerated, and the couch and weeds may die off without further trouble or labour, for we like the Wheat fallows to remain rough if possible until the season arrives for sowing. The old plan of working down the fallows at every ploughing in order to vegetate the weed seeds and then to destroy them is gone out of fashion or usage, as the best farmers prefer to keep the land rough, so that at the time of ridging for seeding it may be mellow and work kindly. With regard to the weeds in the strong soils, we are never safe from their damaging presence, especially where the land requires chalking or liming, unless the Wheat is drilled at 12 inches apart between the lines, in order that in the spring of the year the land may be deeply and effectually horse-hoed between the lines. Instead of using the horse-hoe adapted for working the same width as the drill, we much prefer an ordinary strong horse-hoe with three stout shares like the centre share in general use, as we find that the land can be moved deeper and the weeds cut up better than by the first-named plan of hoeing by the width of the drill. Strong land in the month of March or April after the winter's rains is usually settled down very close, and will not yield to the light implement hoes like it does in the hoeing of spring-sown corn; besides which we often find at the end of April or first week in May that the Wheat will turn off a yellow and sickly colour, which if left alone will only produce a small crop, but when the Wheat is drilled at 12 inches, and the three hoes are used deeply in the soil, the surface is broken sufficiently to give the Wheat plants a fresh start in life. We have always found this to alter the colour of the blade to a deeper green and a better crop. In all cases where the cultivation of the land is behind the proper season the home farmer should not depend upon horse labour only, but in those cases where steam power is not carried out by the necessary farm arrangements it should be hired, as it now can be done in almost every district throughout the country.

Hand Labour.—This is now required in connection with carting and stacking the hay. Men should also be employed, especially if the weather is showery and not fit for hoeing root crops, to use the scythe in the meadows and pastures where they have been fed off by cattle to mow down any rushes which were refused by the stock. This will weaken their future growth very much and allow the young grass to take their place. It is desirable also to cut off all the bunches of grass refused by the cattle, as these often encourage ergot, so injurious to dairy cows. What we call the bunch rushes, and tufts of coarse grass called hassocks, should not be cut off with the scythe, but be taken up with the turf-cutter or sharp-cutting spade and be burned into ashes; this if carefully done will weaken them much for a number of years and allow the better grasses to succeed. The droppings of fattening cattle and dairy cows should also be spread occasionally, or otherwise removed to a heap of earth, to be made into compost for dressing the pastures.

Live Stock.—This has been, and is now, a fine season for cattle fattening in the pastures, as well as the dairy cows. This, however, although abundance of grass is available, should not deter the home farmer from giving both kinds of cattle not less than 4 lbs. of cake per day, for the advantage will not only be found in the stock, but in benefit to the pastures as well. We prefer the best St. Petersburg oil cake for the fattening beasts, and decorticated cotton cake for the dairy cows. We have recently inspected a farm which we had seen three years previously, and we notice an extraordinary improvement in the pastures both as to herbage and bulk of the crop. This is owing to the dairy cows receiving cake daily throughout the year, and also to the application of 4 cwt. per acre of bone superphosphate. Sheep, either fattening sheep or ewes and lambs (if the lambs are weaned), whether feeding on the pastures and park lands or on green crops or grass on the arable land in very sunny weather, gather together under trees or hedges for shade, and there they leave their droppings both liquid and solid, which we contend are entirely lost. Our own plan was to fold the stock in a dead fold from ten o'clock in the morning until four o'clock in the afternoon, shifting the fold daily and giving them whatever trough food they were allowed in the fold; we thus saved the manure. But to protect the animals against the fly they are, of course, to be dipped and treated with fly powder and the usual composition for the purpose. In cloudy or showery weather when the animals do not congregate they may be allowed to roam on the pastures and fields in the day as well as at night.

POULTRY AND PIGEONS.

RINGDOVES.

WITHOUT travelling beyond our province we think we may devote a column to these pretty pets. There is often a spare corner in the pigeonry which may be wired off for them, or they will even live in harmony with the Pigeons. Some little management is, however, necessary to make them do this, and we should

prefer to keep them apart, if in confinement, or to let them fly at large. As the term "Ringdove" has been variously applied, we may as well say at once that we do not mean the larger British ringed Turtle Dove, but the little pinkish grey Dove with a black ring round its neck, otherwise called the collared Turtle, well known in cage and aviary, but seldom seen at liberty in this country. So sweet and soothing is their note, and so elegant their flight, that any true lover of birds may well long to have them at liberty in a garden, which is by no means an impossibility.

Our fancy for them carries us back many years in recollection. We have at intervals kept them under various conditions, and will briefly give our reminiscences of them. We first recollect Ringdoves in the aviary of a rich and eccentric lady; her method of keeping them, however, we do not entirely recommend to our readers. Doubtless there had been small beginnings of her fancy, but in the days of our childhood it had somewhat outgrown the limits of reason, and we should think of pleasure too. Her flock then was supposed unvaryingly to consist of three hundred. In winter they lived luxuriously in rooms at a bailiff's house; towards summer they were removed to a gigantic aviary, the construction of which must have cost a perfect fortune. The interior of it was a substantial wooden house, fitted elaborately with perches and every convenience for nesting. The external wire enclosure was of immense size, not unlike several of the western aviaries of the Regent's Park Gardens thrown into one; it was partially roofed and partially covered with arched wire like a bird cage. Perfect groves of shrubs were planted in it, and a bird flying from end to end might well believe itself at complete liberty. The spring and autumn removals of the Doves were a great event in the establishment, for their summer and winter quarters were distant at least half a mile. They were carried in portable cages made on purpose, with handles at each end for the bearers, in palanquin fashion. Near at hand their cooing must have been somewhat overpowering; we can well remember that to us more than half a mile from their summer residence it sounded soft but somewhat melancholy. Of course when the flock had become so numerous eggs were destroyed in quantities to prevent its further increase.

The end of this dovecote was somewhat sad. A sportsman, but not a lover of birds, succeeded to the place and property. The aviary was required for laying Pheasants. The Doves were suddenly turned adrift. Had only a little kindness and care been bestowed on them we believe they might easily have been acclimatised in the sheltered groves round their former abode, but they were left to chance. They flew into the surrounding gardens and thence dispersed about the park, not a small one, and filled with suitable shelter for them; thence they wandered in search of food into the cornfields and country beyond. Every idle urchin hunted them. They were caught in troops, in pairs, and singly, caged in thrush cages, and penned in rabbit hutches. For a few months they were to be seen hung out at many a cottage door, and were to be bought cheap of low bird-vendors in the neighbouring towns. In a year's time all were gone, and the country people only talked of the days of the Doves at — Park. This complete dispersal was, of course, due to the utter neglect of them, or rather we believe to the fact that their new owner really wished to be rid of them entirely. Far kinder it would have been to give some away and kill the rest that were not required. On the other hand, we have often known them, as the author of the charming "Dovecote and Aviary" calls it, play at liberty in gardens. They are, we believe, natives of North Africa, Asia Minor, and the southernmost parts of Europe, and so prefer a warmer and drier climate than our own. We have seen them in perfect happiness flitting about among the exotics of the Borromean Islands in the Lago Maggiore, and in other of the famous Italian gardens. In those of the Vatican we fancy there were some at large. There certainly in the time of the late Pontiff was a large open aviary full of them at the entrance to the poultry yards. We have seen them, too, in English gardens, generally among Pine trees. Once during a visit near Bournemouth in frost and snow we used to watch them flying about in perfect health, sunning themselves in the morning and coming down for crumbs on to a terrace walk. Their only shelter was a pole house.

They must be gradually accustomed to this kind of life. We remember to have seen them breeding well in a Middlesex garden. They had been reared in a well-appointed aviary, the doors of which were thrown open in early summer. If this be done the risk of cats or other vermin getting in is very great. We should prefer the plan that we once adopted. The old favourites were not turned out, but some young birds through their first moult were hung up in a cage in a Pine grove. The top of the cage was covered with waterproof stuff, and there they lived till

quite accustomed to their surroundings. Then the door was thrown open, and they quietly flew out. The Pine grove was in an extensive poultry yard, enclosed with netting 6 feet high. This afforded some protection from prowling vermin. By degrees the Doves became very strong and fleet on the wing, and though they often flew far beyond their enclosure, they always returned at night to roost on one Pine branch.

There is little difficulty in rearing Doves. It should be remembered that if kept in cages they require some salt, grit, and mortar to help their digestion. So happy and contented are they that these little necessities are often forgotten, simply because they seem healthy without them, but they would not be long-lived. Dixon speaks of one as alive and well which had been caught eleven years before. We have one which was found exhausted in our garden eight years ago. The best food for them is wheat and millet; occasionally some maize and hemp may be given for a change, and in hot weather rice both raw and boiled. The cock and hen sit by turns on the nest, and their eggs hatch in fourteen days. The young ones grow very fast, and if their abode be tolerably dry are hardy enough. In a damp place, or in very bad weather, they sometimes fail at about a week old. Strangely enough the parents then often turn one out of the nest to die, and give their whole warmth of feather and affection to the remaining one. We have sometimes been in time to save the outcast by restoring it at a fire and then returning it to the nest. One caution may be given—Doves are peculiarly likely to be in-bred, they are not of sufficient value for people to take trouble about mating them. In the case of such semi-acclimatised foreigners, in-breeding is specially detrimental to hardihood. The fancier who wishes to succeed in having Doves at liberty in his garden must from time to time make exchanges or purchases from another stock. They are the earliest of birds, and their sweet plaintive note is to be heard at dawn, or occasionally all night long when the moon is bright.

Nearly allied to them is a somewhat darker sub-variety, commonly called African, and a pure white one. They will interbreed, and their produce crossed is almost always of the commoner ringed type.—C.

OUR LETTER BOX.

Bird's Neck Featherless (C. A. J.).—The cause is a defect of wholesome and green food. The remedy, good feeding and plenty of green food; at the same time rubbing the bald place with mercurial ointment, and giving a five-grain Plummer's pill every second day for a week. Separate the bird from the others, or they will probably aggravate the evil by pecking at the affected part. The Ducks referred to by our correspondent are not, we think, his own property, but we will endeavour to ascertain.

Rearing Guinea Fowl Chicks (T. S.).—Chicks of the Guinea Fowl require food soon after they are hatched. Their troughs should be constantly supplied, for they die if kept without food for three or four hours. Have the mother under a coop in a warm corner of the garden, and facing the south. Egg boiled hard, chopped very fine, and mixed with oatmeal is their best food. At the end of six weeks, if hatched under a Bantam or Game hen, they may be allowed to range with her, and be fed at the same time and on the same food as other chickens.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. June. July.	Barometer at 32s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun. 25	29.987	59.4	55.6	N.W.	57.2	71.0	54.4	124.1	54.1	—	
Mon. 26	30. 29	62.2	56.3	N.E.	57.3	68.4	43.8	116.0	45.0	0.046	
Tues. 27	30.101	64.2	57.9	N.W.	57.3	74.3	49.0	124.6	47.3	—	
Wed. 28	30.199	64.9	58.8	W.	58.8	72.3	53.7	119.2	50.0	—	
Thurs. 29	30.166	62.0	58.4	N.	59.8	74.3	56.6	119.2	54.3	—	
Friday 30	30.132	58.6	57.1	N.	59.3	65.4	51.8	77.0	46.2	—	
Satur. 1	30.125	59.8	54.2	N.W.	58.3	75.0	46.0	123.2	44.1	—	
	30.103	61.6	56.9		58.3	71.7	51.5	115.5	48.7	0.046	

REMARKS.

25th.—Rain in early morning; fine, bright, and warm.

26th.—Rain at noon, with slight thunderstorm 0.20 to 0.25 P.M.; afternoon bright, evening overcast.

27th.—Fine, bright, and warm.

28th.—Fine and warm.

29th.—Overcast, storm-like, and close.

30th.—Cloudy and cool, latter part of day much brighter.

1st.—Very fine, calm, summer day; lunar halo after 11.15 P.M.

A generally fine week; temperature almost exactly the average.—G. J. SYMONS.



13th	TH	Birmingham Rose Show. Two days.
14th	F	Manchester Rose Show. Two days.
15th	S	Birkenhead Rose Show.
16th	SUN	6TH SUNDAY AFTER TRINITY.
17th	M	
18th	TU	Leek Rose Show.
19th	W	Luton Show.

ONCE MORE AMONG THE ROSES.

AFTER travelling all round the continent of Africa, after visiting the lovely island of Malta, passing through Egypt, and staying a month in the most beautiful island in the world, Ceylon; after visiting the Antipodes, and being very glad indeed to get away from them, I find myself in Old England just in time for the Palace Rose Show, amid my old favourites. Oh! what a lovely sight it was to see the well-known green boxes of Messrs. Cant, Cranston, and Paul, filled with the most glorious blooms, so fresh and so charming.

The Show itself has been reported, but let me here express my sympathy with my old friend Mr. B. R. Cant for having his fine collection of seventy-two blooms disqualified. It was a hard case to have a duplicate of such an inferior Rose as Madame Nachury, one bloom of which would mar any box, and for this Rose, accidentally placed, to disqualify such a seventy-two was indeed a misfortune. His Teas were most lovely, his dark Roses superb. Prince Arthur, Louis Van Houtte, Xavier Olibo—all the old favourites, were well to the front. His Marie Van Houtte has only once been equalled (never excelled) by my friend Mr. Baker at Exeter. And this reminds me to say how much I regretted the absence of the two great amateurs, Mr. Baker and Mr. Jowitt. The former has lately suffered the most severe domestic loss, which all rosarians will, I feel sure, deeply deplore. Mrs. Baker was such a good judge of a Rose, such an invaluable friend at staging, that I do not know when my old friend will have the heart to show again. Mr. Jowitt has lately changed his residence, and now lives by the sad sea waves in remote Tenby. A Rose show without these two great rosarians must suffer, and there can be no question that so far as the amateurs were concerned there was a great falling off. Mr. Cranston, though he was placed second in seventy-two's, yet showed the most even stand in the Show. It was a great pleasure to see him and Messrs. Paul and Cant having such a close fight. And now to the greater Show—the event of the season in the Rose world.

I think it will be granted that the metropolitan Exhibition of the National Rose Society was one of the largest and most comprehensive ever seen. I do not think I can add the “finest,” because I have been at shows where the Roses exhibited both by nurserymen and amateurs were superior to those at the Show in question; but still there were points of interest which were novel and exceedingly gratifying to rosarians.

I must say that the thanks and congratulations of all lovers of the Rose are due to the Committee of the National Rose Society. It seems to me that no class of Rose-growers has

been omitted. We find both the lordly seventy-two, distinct, of the great nurserymen and the humble six of the suburban rosarian. Very good indeed were these last-named Roses, as were also the, what I may call, “compensation classes,” because the Committee gave prizes in a class for those who had not previously won a prize, and judging by their exhibits I should imagine that the only reason why these amateurs have not won a prize before was because they had not previously shown Roses.

The sight of the Show was undoubtedly Mr. Cant's seventy-two, and the grandest bloom of the Show, of the year, and I should say also of the century, was his bloom of Souvenir d'Elise Vardon (Tea), which occupied the place of honour in his seventy-two, and gained the proud position of being the premier Tea in the Show. Mr. Cant's Roses were quite equal, and in Teas superior, to his beautiful stand at the Palace.

I think, perhaps the great feature of this Show was the display of my favourite Teas, and here I venture to think the amateurs bore off the palm. Miss Watson, the clever forewoman of Mr. Prince, when gloating over her own lovely box of Teas, would not agree with me. But after judging the seventy-two and forty-eight trebles I had nothing to do but examine the Roses, and I gave great attention to the Teas; and granting that Mr. Prince and Mr. Cant had magnificent stands, I still think they were equalled by some of the amateurs, while the rest of these amateurs' boxes were far superior in every way to the rank and file of the nurserymen's Teas. It really was quite sad to see so many beautiful stands passed over, which in any ordinary show would have been sure of a good prize.

In the amateurs' class for twelve Teas Mr. Cuthell, who was placed second, was in my opinion, and that of a great grower and still greater judge, indubitably first. I feel sorry for Mr. Cuthell, and only hope that he will continue to show such Roses as he did on Tuesday for many years, for he gave me and many others very great delight. His Marie Van Houtte, Jean Dueher, and other yellow Roses were superb. In one box a lovely bloom of Amazone was to be seen, also charming examples of Anna Ollivier, Comtesse de Nadaillac, and Mons. Furtado. These weak growers are rarely seen in perfection. Madame Lambard was represented in many boxes, and I am glad to see what an excellent place this charming Tea is taking. The gain to our Teas is very great, as Comtesse de Nadaillac, which approaches it most nearly in colour, is so difficult to grow, and still more difficult to purchase, that the advent of a Rose of similar features is to be gratefully welcomed.

The idea of giving a class to the ladies for an arrangement of Tea Roses was an excellent one, but how could they bear to cut all those lovely Teas for the bare chance of a prize? Mrs. Hawtrey, who was not placed, had some exquisite blooms, including the only examples I saw of Céline Forestier. Some ladies showed forty or fifty Teas, which must have been greatly missed at home. Among Hybrid Perpetuals the Rose that has advanced most in popular favour since last I had the pleasure of writing on Roses is the lovely soft satin pink Madame Gabriel Luizet. The bloom in Mr. Cant's seventy-two gained the prize for the premier Hybrid Perpetual of the Show. A. K. Williams was not shown quite so fine as last year.

Those great amateurs, Mr. Robert Baker and Mr. Thomas Jowitt, were unrepresented at head quarters, and their boxes were much missed by their sorrowing friends, but in their

absence many new comers have deserved well of their country. Mr. Whitwell, that plucky rosarian from Darlington, has come from the far north and defeated us all, carrying home in triumph the valuable epergne which formed the challenge trophy for thirty-six. "It will probably be seen no more," said, with a sigh, a well-known witty nurseryman; "it will most likely go down some coal pit and remain there." It strikes me that when we go over to Darlington we shall have to look out if we are to maintain in the absence of the two gentlemen before named the prestige of the south.

The writer of the article on the Show in the *Standard* seems to be under the impression that the "young Society," as he calls it, has always been connected with the Crystal Palace, and deplores the severance. Will he be surprised to hear that we are by no means so young, and that nearly a quarter of a century ago we held exhibitions at St. James's Hall, at South Kensington for many years, and only twice held our Show at the Crystal Palace? For a really good and accurate account of a Rose Show let me recommend your readers to peruse that paper. The reporter's opinion of Marie Baumann, and his description of Marie Van Houtte, are really so good, and will doubtless commend themselves so much to Mr. Hinton, that I trust that gentleman will at the next election of Roses send a polling paper to the reporter of the *Standard*.

Yes, I have seen *Allamanda Hendersoni*, *Ixoras*, *Dipladenias*, *Hibiscus*, growing like weeds in Ceylon; I have seen the most glorious tropical flowers and foliage, but sweetest of all and loveliest of all in my eyes are the Roses of Old England. Long may the queen of flowers flourish!—WYLD SAVAGE.

VINES AT LONGLEAT.

(Concluded from page 485, last volume.)

DISBUDDING AND STOPPING.

As soon as the Vines have fairly started into growth in the spring some of the shoots will require removal. This will cause them to bleed a little, and I used to wait till some of the leaves were full grown before commencing this operation, when some of the shoots could be removed without any bleeding taking place; but on the whole I find there is more lost than gained by deferring it, and I recommend it to be done as early as possible after growth has started. With vigorous Vines the shoots should be 15 to 18 inches apart on each side, and where more than one starts from the same spur the choice should be given to the one nearest the main rod if it is healthy.

The next operation is to remove some of the bunches as soon as they are visible. Two or three will generally show on each shoot by the time it is an inch or two in length, and one of these only should be left, preferably the one nearest the rod if it is a good one.

A few days later stopping the shoots becomes necessary, the strongest first, leaving the weak ones to grow unchecked for the present. But it must be the merest point that is taken out, altogether not larger than the smallest pea, and this requires considerable experience to do it nicely. The leaves, excepting those at the base, at this time are scarcely large enough to be called leaves, but the experienced eye can count their number, and they should be left according to the amount of space between the rods. Not less than two beyond the bunch is sufficient, and four is better if experience has taught there is room for that number to develop without any crowding. Small shoots (sub-laterals) will start from the axils of these bearing shoots, and they should be stopped and kept to one leaf; some of them indeed near the upper end of the shoot may be removed altogether if the foliage is likely to become too much crowded, but two or three nearest the main rod must be taken care of, or the eyes will

start which are required to remain dormant till another year.

The next thing to be decided is the number of bunches to be left on each rod. At present there is one on each bearing shoot or lateral, and if the Vines are in tolerably good health, and there is no prospect of the fruit reaching a large size, say not more than an average of three-quarters of a pound to the bunch, this number will not be too great; on the other hand, if there is a likelihood that the bunches may be made to average 2 lbs., one bunch to every other lateral will be sufficient, but a great deal depends on the quality of growth the Vines make, also on the space there is for the foliage to develop, and something too on the varieties. Mrs. Pince, which has comparatively thin foliage, requires a greater area of it in proportion to the fruit, while Alicante, which has leathery-like foliage, is the reverse of this. Most of the surplus bunches should be removed before the flowers commence to open.

THINNING THE FRUIT.

From ten days to a fortnight after the first flowers open on the Hamburgs thinning may be commenced. All the smaller berries and unfertilised flowers are removed first from a bunch; next the remaining berries, if they are so close that the thick end of a pencil cannot be pushed in between them, are thinned out sufficient for that, and the whole crop is examined in this way, by which time it can be seen which are likely to be the best berries, and the regular thinning is commenced in earnest. Preference is always given to the upper berries on a branchlet, and of those on the top of the bunch nearly all are left; others are thinned so that they average about half an inch from berry to berry. It is not a good plan, however, to insist on their being all at regular distances apart. The best berries should be chosen, and if sometimes there should be an inch of space and then two or three berries closer together, they will as they grow generally push one another into their proper places. I find that with young hands there is a great anxiety to have the berries regularly placed on every bunch, and to secure this many berries are left which are not likely to swell to the largest size. The bunches I thin myself often look very imperfect at first, but they alter before the season is over. The thinning of the late Grapes comes next to the Hamburgs, that of the Muscats being left to the last, and I do not think there is any advantage in thinning them till they reach the size of a pea. Large bunches of all varieties are tied out in preference to cutting them down to half their size.

After all have been gone over once they will require looking over again, and nothing but practice will teach exactly how much to thin them, as some Vines will make much longer berry-stalks or larger shoulders than others, and of course the longer the footstalks the less need of thinning. Late Grapes which have to be kept till the following spring are thinned considerably more than those which are to be used in autumn, but no bunch should ever be so much thinned that when it is cut and laid on one side the berries will roll out of their places.

SHANKING AND ITS PREVENTION.

Shanking is caused by an imperfect or insufficient assimilation of food by the leaves. It may happen

when the Vines are growing in the richest of borders, and it may be prevented when they are in the poorest. The leaves of a plant are not only its respiratory organs, they are also the organs by which digestion is mainly effected, and it is of no more use to apply rich manure to a plant, the foliage of which is unhealthy or insufficient, than it is to feed a bedridden and dyspeptic person with turtle soup. The way to prevent shanking, then, is to follow the instructions I have given for the production and sustenance of healthy foliage. If the foliage suffers from scorching or the ravages of insects, especially red spider, it cannot perform its work efficiently, and of course if the soil in which the roots are working becomes too dry at any time the effect will be similar. In mild cases of shanking the backwardest and most imperfect berries only suffer, but in severe cases whole bunches will go at once. There is no cure during the current season for this, but when it happens the cause should be sought out, and steps should be immediately taken to prevent its recurrence.

MILDEW AND ITS CURE.

As far as I know Vines are always liable to attacks of mildew. It is not, like shanking, a trouble which we create for ourselves; it is, however, most likely to come when the soil is dry and the atmosphere humid, and these conditions favour its rapid development. A constant look-out must be kept for it, and when it does appear an immediate check must be given. It generally comes first in the shape of small round mealy-looking spots little larger than the head of a pin, and scarcely visible to any but the most practised eye, but if left unchecked it will in a few days spread over a whole house. Sulphur is the most effectual remedy. The pipes are made hot while the ventilators are open; a wet rag is wiped along a couple of yards at a time, and sulphur is dusted on while the pipe is wet from a piece of muslin rag or hexagon netting doubled. In the evening, after the sun heat is mostly gone and the pipes have been made as hot as possible, the house is closed, when a bluish mist may be seen to rise from the heated sulphur, such as will make one's eyes smart, and will in the course of two hours kill all the spores of the mildew. It is scarcely safe to use such a severe measure before the Grapes have grown to the size of a pea, nor yet after they are ripe. In these cases sulphur can only be used locally by dusting it on to the parts affected; but sulphur tells tales, and although I am sometimes obliged to use it on the pipes, it never remains there more than forty-eight hours.

KEEPING THE FRUIT.

All fruit should be cleared off the Vines by the middle of January, and the Vines should be immediately pruned. The conditions for keeping it after cutting are the same as those named for keeping it on the Vines—viz., an even temperature with constant ventilation. About 45° is the temperature I generally aim at, but in a more northern latitude I should prefer 5°, or even 10°, lower. The best general advice is perhaps to have a little warmth and a current of air constantly. The stems should be inserted in the bottles or tubes containing water as quickly as possible after they are severed from the Vines, and they will do as well upside down as any way. No charcoal is needed, as the Vine stem itself, so long as it touches

the water, will keep it perfectly sweet; and it is unnecessary to close up the space in the neck, for the presence of water is not inimical to the keeping of the fruit here any more than in the vinery. A very dry atmosphere indeed should be avoided.—WM. TAYLOR.

NOTES ON THE AURICULA.

FROM all quarters we hear that the day of the Auricula has come, and that new growers are taking it on hand all over the kingdom. Much attention has always been given in this Journal to these lovely spring flowers, and now that they are more generally grown and better understood it is only fitting that notes should be increased on certain points in its cultivation. As one glad to pick up hints by the way, I am always pleased to see anything from experienced growers; and though I can claim only to be a young grower, yet the subjoined notes may be of interest to some who have been puzzled by conflicting teachings.

The operation of potting is of importance just now, as autumn flowering is held by some to be affected by potting early in the summer or later on. Practically I do not see that the time of potting has any appreciable effect on the plants throwing up flower trusses in autumn, and when I state the conditions of growth of the Auricula this point may be more clearly understood. With the lengthening of the day in earliest spring the Auricula commences growth—top growth first, and then activity at the roots commences. Up till the time the flowers are developed the root-action is merely an extension of the roots made the previous season; but about the time of flowering, there being a noticeable difference in different varieties, fresh roots are protruded from the neck of the plant, and these roots may be said to take on themselves the main burden of the maintenance of the plants. It is very plain that if the plant is to have the full benefit of the fresh soil the earlier it is potted the better, for by August root-action is virtually at a standstill, and plants left later than the beginning of June do not benefit by the repotting until the following spring.

Autumn-flowering, I am much afraid, is greatly dependant upon the weather, and to a great extent uncontrollable. What appears to me the best means of at least mitigating this evil would be to keep the plants as cool as possible during autumn the season they are so susceptible to a term of genial weather. If the winter is open, as last was for instance, the plants may be kept very dry at the roots without harm, and under such treatment the trusses do not come too early. From the time growth commences in spring until August, however, insufficient water is hurtful.

As compost I like a good loam, with some fresh but dry manure rubbed fine, in the proportion of one-third to one-fourth of the loam. I use cinders for drainage—a much better material than broken pots. The soil is pressed very firmly; in fact the firmer the soil the better the plants seem to thrive. The collar of the plant should be kept well down in the pot. Tap-roots I find are best dispensed with. The younger roots are the food-purveyors, and, believing that, we cut the "taps" pretty hard in, and use small pots, most of our flowering plants being in 3 and 4-inch pots, a very few extra strong well-rooted plants being in 5-inch pots. Offsets are best left on the parent plants until they are strong; small offsets are easily enough brought on with care, but I consider it is better to leave them as a rule until they are fit to bear the severance without hurt. I have just turned out some plants repotted four weeks from the time of writing, and I find them rapidly forming a ball of roots; had they been left till now how different the result would have been! —A YOUNG GROWER.

THE ALEXANDRA PALACE ROSE SHOW.

THIS Show was held on Saturday last, and was far from being equal to former exhibitions held in the same building; indeed, in comparison with the National Rose Show at South Kensington it really was disappointing to see such vacant spaces and such relatively poor exhibits. There were, of course, exceptions, for such great growers as Cant, Cranston, Paul, and Turner were represented; while Mr. Whitwell from Darlington, Mr. John Wakeley, and Mr. Pemberton showed very fairly: but after all it can only be properly described as a ghost of a Rose show! Mr. Cant was again first in seventy-two, also in forty-eight trebles and twenty-four singles, followed by Messrs. Cranston & Co., and Paul & Son of Cheshunt. Mr. Cant's Roses showed signs of the inclement weather we have been lately having, but although they were inferior to those shown by him at the National yet his stands were very good. His best blooms were A. K. Williams, Baronne de Rothschild, Niphetos, Madame Gabriel

Luizet, and Marie Cointet. Duke of Edinburgh was shown exceedingly fine in colour in the amateurs' stands, being bright scarlet; Maréchal Niel small but very good in colour, and Général Jacqueminot. Mr. Cranston's Roses were inferior to those he showed at Kensington and Sydenham, bad weather having again been the cause of this falling-off. His best blooms were Baronne de Rothschild, A. K. Williams, Auguste Neumann, Louis Van Houtte, John Stuart Mill, and Charles Lefebvre. Messrs. Paul & Son's most noteworthy blooms were Duchesse de Morny, a most lovely treble; Duke of Edinburgh, A. K. Williams, Comte de Raimbaud, Marie Baumann, Prince Arthur, and Prince Camille de Rohan. Mr. Charles Turner also showed some fine trebles, including Sénateur Vaisse, Lord Macaulay, Abel Carrière, Alfred Colomb, Madame Lacharme, and that superb Rose A. K. Williams.

In the amateurs' class for thirty-six Roses Mr. Whitwell was the premier exhibitor, his fine blooms showing to advantage on black velvet stands. Mr. Davis was second, and Mr. Hollingworth third in this class. Mr. Whitwell was also in the premier position with twenty-four trebles. Mr. Pemberton was first in the classes for twenty-four single blooms and for twelve Teas, followed in the former class by Messrs. Mitchell and Wakeley, and in the latter by Mr. Harrington. Mr. Pemberton had a superb bloom of Belle de Bordeaux, which I suppose is hardly a Tea, also Perle de Lyon, Madame Lambard, and Madame Bravy. Mr. John Wakeley had a grand stand of twelve Roses; his Marquise de Castellane, Duke of Edinburgh, and La France did a great deal towards winning for him the first prize. Mr. Pemberton's excellent second-prize box included fine examples of Marquise de Castellane, Baronne de Rothschild, Alfred Colomb, Horace Vernet, and Fisher Holmes.

One of the features of the Show, and a very pretty one too, was the competition for bouquets. Prizes were given for white, dark red, yellow, mixed, and crimson Roses. Mr. George Paul had the best bouquets. His mixed one was so very lovely that the remembrance of it will linger with me for a long time. Messrs. Kinmont & Kidd were also prizewinners.

The classes for boxes of one colour were very fairly filled. Mr. Cant had a glorious box of dark Roses. The nurserymen's Teas were scarcely up to the mark. Mr. Prince and Mr. Mitchell did not exhibit, but Messrs. Paul, Cant, and Turner did. Mr. George Paul's Teas were small but very lovely; Mr. Cant's very good, but not equal to those previously shown by him this season. His Niphetos, however, was very fine, and his blooms of Maréchal Niel, Caroline Kuster, Madame Lambard, and Catherine Mermet good. Mr. Charles Turner showed a superb bud of Madame Lambard, which was quite different in colour to Mr. Cant's, being more like Comtesse de Nadailac or Catherine Mermet. This Rose is evidently very uncertain as to colour, but is a most welcome addition to our Tea Rose lists. For thirty trusses of white Roses the prizes went to Messrs. Cant, Turner, and Paul.

There was only one entry for the modest class of one thousand Roses. Mr. George Paul did his best to fulfil a most absurd demand. Some stands and baskets were staged by Messrs. W. Paul & Sons and other exhibitors.

The weather was very bad, but perhaps it was a good thing that the rain descended and the sun kept in the background, as there was not the least shelter for the Roses except the glass roof. Confusion was everywhere. The clerk who had to write out the list of the prizetakers was new to the business, and made many mistakes. It was high noon before the Judges commenced their work. One or at most two policemen in vain tried to prevent the general public breaking in during the judging, and at one o'clock there was scarcely a prize card placed upon a winning box. I have endeavoured to give your readers as fair a description of the Show as I could under the most difficult circumstances; but at the time of my visit I was under the impression that a reporter from the Journal office was present, so that writing from memory I am unable to give a complete list of all the prizetakers.—WYLD SAVAGE.

STRAWBERRIES—MODES OF CULTURE—MISTAKES.

WHEN my notes, published on page 1 last week, were penned, the articles on page 506, June 22nd, had not appeared, or I should not perhaps have felt it necessary to write on the subject of Strawberry culture. Your correspondents, "SINGLE-HANDED" and Mr. Bardney have, however, saved me some trouble. I intended in effect saying much of what they said, and I have now only to comment on their remarks, and emphasise, under certain conditions, the value of the practices they have recommended for raising plants, referring also to some methods of culture that are adapted to special soils and districts.

Against layering runners in pots I have nothing to say, although I can grow Strawberries quite well by a simpler system. Layering in turves, as "SINGLE-HANDED" observes, has objections, but it also has advantages. When rightly managed turves do not dry to a serious extent. The pieces $3\frac{1}{2}$ inches square placed nearly close together, with leaf soil placed over them and worked between them, form splendid receptacles for young plants, and do not need half the watering that runners pegged in small pots do. Your correspondent, however, suggests the turf plan has

other faults. This is quite true, and one may be pointed out so that others may avoid a mistake that I once made in adopting this system. There were visible a few roots of couch grass, but it was thought all these had been drawn out of the square pieces of turf. The next season proved that this was not so, and the mixture of couch and Strawberries was not a result to be proud of. But worse than this, the turf contained Dandelion seed, which was good of its kind, for it germinated freely, producing thousands of plants. Turves then certainly have "faults," and it is easy to make a mistake in raising something else besides Strawberries in the fertile squares in question; but there is a remedy.

Without a charred heap of rubbish, prepared annually, it is certain that my failures in fruit and plant culture would have been more numerous than they are. It is the practice to collect rubbish of all kinds in the autumn—the refuse of the kitchen garden and pleasure grounds—leaves, weeds, hedge-trimmings, ditch-scurings, and clay. A huge fire is made that lasts for weeks; when in full glow it is cased every night with turves, which are thus completely scorched. These charred turves form the most valuable of all soil for general potting purposes. Nothing equals it, and nothing equals these now weedless turves for establishing Strawberries in, but to have them in the best possible condition they must be doctored. This is a very simple process. They are of course as dry as dust, and there is only one way of moistening them quickly and thoroughly, and that is to place them in a tub of water. And why not mix a spadeful or two of guano in the water—soak turves, in fact, in liquid manure? Let anyone try this method, and then say all they can against it. Let them insert Strawberry runners in such doctored turves, and they will have no weeds but splendid plants, sturdy in growth and of the deepest green. They will admit then that if the turf system has faults it also possesses advantages.

This is the best of all modes I have tried for raising Strawberries in a dry district. In a wet one the method of cutting off the runners as soon as they show rootlets and dibbing them in a rich bed of soil and manure, as if provided for pricking out Celery plants, is quicker, simpler, and good. If anyone asks why this latter plan is not equally good for dry localities, he will afford evidence that he has not experienced the anxiety of waiting for rain for weeks, even months together, watching plants of all kinds spoiling because they cannot be planted, while it would be almost certain death to them if disturbed. In districts where the soil is thin and light and periods of drought occur, these square turves are of enormous advantage in preparing Strawberries, as the plants can be kept growing in the most satisfactory manner for weeks if needed until the weather is favourable for planting, the turves being arranged in a convenient position, not packed closely together, but the spaces between filled with rich soil, and liquid manure will do the rest. My advice, then, founded on experience, is that those living in cool districts where summer showers are prevalent may adopt the plan advocated by "SINGLE-HANDED;" but in dry localities there is risk of the plants being injured, either by remaining in the nursery bed too long, or being removed in unsuitable weather for planting. It may be urged the turf system "takes time." Yes, it does; but is not the time of two days well spent when success follows? and is not the labour of less time wasted when failure ensues?

Mr. Bardney has advocated growing a few young, early, and healthy plants in a convenient position, specially for producing runners for propagation. Sounder advice than that was never penned. Obtaining runners in a haphazard manner from between the rows of bearing plants, which are more or less exhausted by the crop, is a bad beginning in Strawberry culture, and the initial cause of many failures. It is important that the plants for producing runners be obtained from a fruitful stock, as some plants are essentially unfruitful, and it is certain their nature is perpetuated by propagation. This I have proved by a careful experiment extending over a period of six years.

Another point of practical importance is to grow those varieties that are found to succeed best in your own garden. Strawberries are capricious, and this is the sequel of the widely different estimates that are given by different cultivators on the same varieties. A few years ago I had a remarkable crop of President. Runners were requested by visitors, and in due time supplied—strong, fine, early runners, but in two instances to my knowledge these gave no results, and after a full and disappointing trial the plants were destroyed. The soil was too good for them. They grew enormously, but produced little fruit, and the majority of this malformed. Similarly I have obtained from an undoubtedly fruitful stock plants of La Constante, Rivers' Eliza, Wonderful, Cockscomb, and Sir Charles Napier, but by no method of culture could good

crops be obtained from them, and during a three-years trial they proved to be cumberers of the ground, and were rooted out.

I would dissuade no one from trying new varieties, but it is necessary to urge upon young gardeners especially the desirability of having, in addition to the trials, a sufficient number of plants of proved kinds for meeting the full demand for fruit. Tempted by glowing eulogiums, and by, it may be, seeing a wonderful crop of a new variety, many cultivators have made mistakes by planting largely of the new, and limitedly of their own proved useful old sorts. I have been under the spell of the novelty fascination, and found myself a victim to its charms. If Vicomtesse Héricarte de Thury thrives with you, keep it; if President always bears, do not discard it; if Sir Joseph Paxton affords good crops, retain it; if Keens' Seedling bears abundantly, continue it—at least, until you have got the true Admiral Dundas, and it is found to be superior. Try also to make either British Queen or Dr. Hogg grow. The latter will often succeed where the former fails, and in such a case grow the best only. As late sorts Frogmore Late Pine is the best in quality—when it can be had. Where it fails the hardier varieties Eleanor or Elton usually succeed, and must be grown even if they are acid. Loxford Hall Seedling I have not tried. James Veitch is large, but too pale and sour. A new variety I have tried this year (Forman's Excelsior) is very promising. It is as early as the Vicomtesse, nearly as large again, and good in colour; yet some of the fruits are hollow, and the flavour is, well—"not bad." Sir Charles Napier is too tender for cold wet districts.

With the Vicomtesse (syn. Garibaldi), President, Sir Joseph Paxton, Admiral Dundas, Dr. Hogg, Eleanor, and Elton, and by planting the earliest in warm positions and the latest in cold situations, I can have an abundance of acceptable fruit over the longest period in a district where the soil is rather light, the summers often dry, and the winters usually severe. In fact, in my experience those varieties succeed almost anywhere, except, perhaps, President, which sometimes fails by growing too exuberantly in rich strong soil.

I have a little to add about planting, but must not add it now, or the Editor will do what he has sometimes done before—cut me down. I, therefore, profit by experience, although I confess I do not like stopping when the writing fit is on me, and I certainly object to start when it is not—*then* I much prefer digging.—A NORTHERN GARDENER.

CANTERBURY ROSE SHOW.

ALTHOUGH one of the youngest of our Rose societies this is one of the most vigorous. Situated as the old city is in the midst of a district favourable for the growth of the Rose, and managed by two hardworking Secretaries backed by a good Committee, it has soon attained a position of importance, and is most ably supported by some of our first rosarians. When I say that Messrs. Mitchell, Cant, and Prince exhibited in force, as well as the Kentish nurserymen, and that Messrs. Haywood and Waterton, the well-known Reigate amateurs, and the well-known Kentish growers, the Messrs. Wakeley of Rainham, the Rev. H. B. Biron, Mr. Mount, and others in the neighbourhood entered, it may well be imagined that an exhibition of no ordinary excellence was made. Then, of all the rooms that I know there is none better adapted for a show than the Corn Exchange at Canterbury, while the quality of the blooms was quite equal to any that I have seen this season.

Taking the open classes first, the first prize for twenty-four was taken by Mr. Haywood of Woodhatch, Reigate, containing Comtesse d'Oxford, Mad. Gabriel Luizet, J. S. Mill, Baronne de Rothschild, Victor Verdier, Duke of Edinburgh, La France, Senateur Vaisse, Beauty of Waltham, Comtesse de Choiseul, Madame Lacharme, Louis Van Houtte, Etienne Levet, Mrs. Baker, Camille Bernardin, E. Y. Teas, Duchess of Bedford, and Eugène Fürst; Mr. Waterton was second with a very good box, amongst which was a very remarkable sport from Comtesse d'Oxford, splashed with white, very striking; and, as it is now I believe fixed, likely from its novelty to be a favourite. For the best thirty-six for nurserymen the first prize was won by Mr. Cant with some of his exquisitely finished blooms, Mad. Gabriel Luizet, Souvenir de M. Boll, Marguerite de St. Amand, Horace Vernet, La France, Duke of Edinburgh, Madame Charles Wood, Duke of Teck, Souvenir d'Elise, an exquisite bloom; Duke of Connaught, Baronne de Rothschild, Princess Mary of Cambridge, Capitaine Christy, Beauty of Waltham, Innocente Pirola, Duke of Edinburgh, a grand bloom; Etienne Dupuy, A. K. Williams, Anna de Diesbach, a fine bloom of an old Rose very rarely seen; Madame Eugénie Verdier, Annie Laxton, Souvenir de la Malmaison, Fisher Holmes, Devoniensis, &c. Two most exquisite boxes of twelve Teas were exhibited by Messrs. Mitchell and Cant, and there must have been considerable difficulty in deciding between them. Mr. Mitchell's contained Devoniensis, Catherine Mermet, Rubens, Souvenir d'Elise Vardon, a grand bloom; Madame Willermoz, Anna Ollivier, Duc de Magenta, Jean Pernet, Marie Van Houtte, Comtesse de Nadaillac, Maréchal Niel, and

Niphetos; in Mr. Cant's box were some lovely blooms, Souvenir d'Elise, Catherine Mermet, Innocente Pirola, very lovely, and others.

The amateurs' classes were well filled, and some thoroughly first-class flowers were exhibited. The cup presented by the President, Ashby Dodd, Esq., was won by a grand box of blooms exhibited by Mr. J. Wakeley of Rainham, containing La France, Etienne Levet, Belle Lyonnaise, Charles Lefebvre, J. S. Mill, Camille de Rohan, A. K. Williams, Capitaine Christy, François Michelin, Xavier Olibo, Marie Baumann, and Henry Bennett. This box also secured for the exhibitor the National Rose Society's silver medal as the best box in the Show. The same exhibitor obtained the first prize in the class for eighteen with Madame Victor Verdier, La France, A. K. Williams (this was a very grand bloom, and obtained the National Rose Society's bronze medal for the best Rose in the Show), Charles Lefebvre, Capitaine Christy, Etienne Levet, E. Y. Teas, Prince Arthur, Comtesse d'Oxford, Dr. Andry, Baronne de Rothschild, Marie Rady, Horace Vernet, Duc de Chalus, Eugène Fürst, and Prince Camille de Rohan. The first prize for twelve was taken by Mr. W. Wakeley with Baronne de Rothschild, Etienne Levet, Capitaine Christy, J. S. Mill, Le Havre, La France, Eugène Verdier, Mad. Gabriel Luizet, Camille Bernardin, John Bright, Ferdinand de Lesseps, and Fisher Holmes. In the class for twelve Teas Captain Knight was first with a good box, containing Catherine Mermet, Souvenir d'Elise, Madame Lambard, Lanrette, Madame Hippolyte Jamain, Marie Van Houtte, Rubens, Mons. Furtado, Madame Bravy, Comtesse de Nadaillac, Souvenir d'un Ami, and Jean Ducher. In class 4, six varieties, three trusses of each, Mr. W. H. Wakeley was first with Henry Ledeehaux, Ferdinand de Lesseps, Baronne de Rothschild, Duke of Connaught, Capitaine Christy, and Alfred Colomb. In class 5, for twelve varieties, the first prize was won by Mr. G. Mount with a nice box containing Baronne de Rothschild, Marie Baumann, Capitaine Christy, Alfred Colomb, Victor Verdier, Mad. Gabriel Luizet, John S. Mill, Souvenir de la Malmaison, Jean Ducher, Louis Van Houtte, and Innocente Pirola. The same exhibitor also took first for the best six Teas—Catherine Mermet, Marie Van Houtte, Souvenir d'un Ami, Souvenir de Paul Neyron, Niphetos, and Anna Ollivier. Mr. J. Wakeley took the first prize for the best six of any one kind with a fine box of La France.

There were some excellent stands of flowers exhibited, the first prize going—as it almost always does—to Mrs. Biron, with a very prettily arranged stand in which wild Roses formed a very distinct feature, and for lightness and elegance left nothing to be desired. The smaller classes were also well contested, and there were really very few indifferent boxes. I have only enumerated the flowers in the first-prize stands, but on the trees exhibited by Captain Lambert, Mr. Buchanan, and others there were many excellent blooms; but it would serve no practical purpose to merely repeat the names. Unfortunately the day was not so propitious as might have been desired, otherwise the Show was a decided success, and I think all who have had to do with originating and sustaining the Canterbury Rose Show may well be proud of the results of their labours.—D., Deal.

ECHIU ALBICANS.

IN all respects this is a remarkable and showy plant. It is dwarf in habit, growing from 9 to 15 inches high. Leaves linear lanceolate, acute, very hairy, in dense spreading tufts. The flower stems have from six to ten thyrsoid racemose branches, carrying numerous flowers with hairy calyces; the corolla is funnel-shaped, about 1 inch long, less than half an inch across, light rose-coloured at first, afterwards changing to violet purple. It is a native of the mountains of Spain, occurring at elevations between 2000 and 5000 feet, but it is very scarce under cultivation in this country. I have seen in different collections more than one species under the same name, one of which was in the late Mr. Joad's garden at Wimbledon. It was a very large grower, for when I saw it, just previous to flowering, it was 5 feet high, with a coarse branching habit, totally distinct from this plant now described. It is more frequently met with on the continent, and I think it flowered outside last year with Mr. Max Leichtlin at Baden Baden. There is no doubt of its hardiness in this country, but excessive wet during the winter may cause it to decay, to prevent which it is advisable to afford it protection, as it is well worth it, for, as well as being extremely rare, it is very showy. It enjoys a well-drained sunny position on the rockery with a good depth of rich soil, and must be increased by seed, as the roots are not readily divided without injury to the plant.—N.

OMPHALODES VERNA.—A very useful old-fashioned flower, one of Mr. Fish's favourites, and nobody has, perhaps, grown it better. It is too well known to require description, except to say it is of dwarf habit, producing bright blue flowers about one-third of an inch across very early in the year—March to May. There is also a white-flowered variety known under the name of alba, which is a charming companion to the type. These are both plants well worth growing for the rockery or border, and they can also be well utilised for the spring garden decoration, as they are readily increased by division of the roots, which should be done soon after flowering; and for bedding

purposes the plants should be liberally treated and placed in a partially shady position in rich soil. It is a native of southern Europe, and was introduced as early as 1633.—R.

TUNBRIDGE WELLS SHOW.

JULY 7TH.

THE horticultural credit of one of the most beautiful districts of favoured Kent was admirably maintained at the Tunbridge Wells Show of last Friday; and though on some previous occasions the entries in a few of the classes have been more numerous, yet, taking the Exhibition as a whole, perhaps the general quality has never been surpassed. Plants, flowers, fruit, and vegetables were all well represented, the classes devoted to flowers being the weakest portion of the display, notwithstanding the fact that several satisfactory collections of Rose blooms were contributed. The handsome Public Hall opposite the South Eastern Company's railway station contained the fruit and flowers, three large marquees in the grounds attached to the Calverley Hotel being devoted to the other exhibits. These were arranged to the best advantage, and Mr. E. F. Loof, the Secretary, deserves much credit for his methodical system.

Stove and Greenhouse Plants.—Several collections of unusual merit were staged in the open classes, but that for which the first prize was deservedly awarded in the class for eight stove and greenhouse plants in flower is particularly worthy of note. These specimens were staged by Mr. J. Gilbert, Springfield Nursery, Hastings, and were much admired for their neatness, health, and beauty. The best were the following:—*Statice profusa*, about 4 feet in diameter, and bearing abundance of flowers, was very telling; *Allamanda cathartica* and *A. Hendersoni* were also in superb condition, though of moderate size, the blooms being very numerous and the foliage vigorous. That extremely showy plant *Kalosanthes coccinea superba* was admirably represented by a specimen of considerable size, bearing large trusses of brilliant flowers. The second position was secured by Mr. James Bolton, gardener to Wm. Spottiswoode, Esq., Coombe Bank, Sevenoaks, who also had specimens of considerable merit, amongst them being two that deserve particular notice—namely, *Tabernaemontana coronaria* fl.-pl., over 4 feet in height and most profusely flowered, and *Clerodendron fallax*, 6 feet high, with twenty grand trusses of rich scarlet flowers. Very rarely indeed is this attractive plant seen in such fine condition at exhibitions. Mr. Samuel Pope, gardener to F. F. Barrow, Esq., Holmwood, Tunbridge Wells, was third with smaller specimens but very neat, *Erica Bothwelliana* and *Kalosanthes coccinea* being the best. In the smaller class for four plants Mr. Gilbert was first with similarly creditable specimens to those in the other class, *Dipladenia amabilis* and *Allamanda Hendersoni* being in first-rate condition. Mr. Bolton followed closely, having a specimen of *Clerodendron fallax* nearly as fine as the one already noticed. Mr. G. Fennell, gardener to E. Cazalet, Esq., Fairlawn Park, was third, his best specimen being a well-grown *Stephanotis floribunda*. In the amateurs' and gardeners' class Mr. Pope was the most successful exhibitor, having *Bougainvillea glabra*, *Kalosanthes coccinea*, and *Statice profusa* in excellent form. Mr. Bolton was a good second, his leading plants being a large *Agapanthus umbellatus* and *Clerodendron Balfourianum*.

Fuchsias.—These were shown in most satisfactory condition, the plants being of pyramidal form, not too rigidly trained, very healthy, and extremely floriferous. Mr. F. Earley, gardener to G. H. Brittain, Esq., Ferndale House, Tunbridge Wells, won chief honours with six handsome grandly flowered plants, the varieties being *Rose of Castille*, *Sir Colin Campbell*, *La Crinoline*, *Mont Blanc*, *Peerless*, and *Arabella*. Mr. C. Shobridge, gardener to W. Edwards, Esq., Fern Bank, Tunbridge Wells, was a close second, all his plants being good, but *Rose of Castille* especially so. Mr. N. Turner, gardener to F. R. La Lacheur, Esq., The Wilderness, Tunbridge Wells, took the third position, the most notable plant being *Arabella Improved*.

Achimenes.—For six specimens of these in 11-inch pots Mr. F. Allan, gardener to G. Hanbury Field, Esq., Ashurst Park, won the premier honours with beautiful examples, which were particularly noteworthy for the great size of the flowers. The specimens were 3 to 4 feet across, the foliage and growth healthy and vigorous, with most abundant blooms. The varieties were *A. longiflora* and *rosea*, Edmund Boissier, Margareta, Mauve Queen, and Ambrose Verschaffelt. In general good quality this was one of the best collections of *Achimenes* that has been shown this year. Mr. H. Scammell, gardener to C. Reilly, Esq., The Priory, Nevill Park, who took the second prize, also had well-grown examples of good varieties.

Pelargoniums were shown by Mr. J. Wilkins, gardener to Mrs. Williams, Shirley Hall, Langton, in satisfactory condition, especially in the classes for show and double Zonal varieties, the latter being represented by well-flowered specimens. Mr. Bolton's collection of Tuberous Begonias was also noteworthy for the good condition of the plants.

Fine-foliage Plants.—An important feature in the Exhibition were the entries in the classes for these plants, and, like all the other contributions, they were distinguished by their vigorous health. In the open class for eight specimens Mr. C. Rann, The Gardens, Handcross Park, Crawley, Sussex, took the lead with his large examples of *Areca sapida*, *Gleichenia Mendeli*, *Cycas revoluta*, *Croton undulatus*, and *Thrinax elegans*, amongst others nearly equally fine. Mr. Gilbert

was adjudged the second prize for well-grown specimens, his examples of *Dicksonia antarctica*, *Dasyllirion acrotrichum*, and *Phormium tenax variegatum* being large and healthy. Mr. Pope, who was placed third, had smaller but very neat plants, *Croton angustifolia* and *Beaucarnea longifolia* being the two finest specimens. In the amateurs' and gardeners' class the last-named exhibitor gained chief honours with excellently coloured *Crotons*, and a fine *Alocasia metallica*. Messrs. Johnston and Bolton followed in that order, both showing well.

For eight exotic Ferns in the open section Mr. C. Rann was again in the principal position with beautiful fresh healthy plants of *Dicksonia squarrosa*, *Gleichenia rupestris glaucescens*, *Cyathea Smithii*, and *Thamnopteris nidus*. Mr. Bolton had *Goniophlebium subauriculatum* and *Davallia Mooreana* in fine order in his second-prize collection; Mr. Pope being third with large *Agatheas* and *Dicksonias*. Mr. H. Scammell, who took the lead in the gardeners' class for six *Selaginellas* with beautiful examples in pans, the growths trailing freely over the sides. *S. caesia* was finely coloured, *S. Martensi variegata*, *S. Lobbi*, and *S. Willdenovii* being similarly good. Mr. Bashford followed with similar specimens of *S. stolonifera*, *S. caesia*, and *S. apus*, Mr. Earley being a good third.

Groups.—Eight pretty groups were staged in the gardeners' class for the most effectively arranged collection of plants in a space 9 feet by 6 feet, and all were distinguished by more than ordinary taste. Mr. Fennell won premier honours with a graceful and free but bright collection, which comprised a background of Japanese Maples, Roses and Casuarinas, *Cocos Weddelliana*, Ferns, *Aralias*, *Crotons*, and *Caladiums* forming the chief of the other fine-foliage plants employed; while abundant colour was supplied by *Tropaeolums*, *Francisceas*, *Pelargoniums*, and *Gloxinias*, the margin consisting of *Panicum variegatum*. Mr. Bashford won the second prize, his group having a background of fine *Humeas*, and handsome plants of *Lilium auratum*, *Grevilleas*, *Petunias*, *Abutilons*, *Pelargoniums*, *Begonias*, *Coleuses*, and *Caladiums* were also freely employed, producing a very bright effect, but slightly more formal than the preceding. Mr. Bolton was a good third, also with a group abounding in bright colours, and perhaps this was its chief defect—i.e., too great a preponderance of such shades as those afforded by *Ixoras* and *Clerodendron fallax*, with scarcely sufficient foliage plants to subdue the brilliancy, though some neat little specimens of *Phyllanthus nivosus* were noteworthy. The margin of *Adiantums*, *Panicums*, and *Ficus Parcelli* was very pretty. Messrs. Turner, Pope, and Earley secured the other prizes in that order.

Cut Flowers.—As already noted the principal exhibits in this section were the Roses, several fine collections of which were staged. Amongst the nurserymen Messrs. James Mitchell & Son, Uckfield, showed particularly well, taking the leading position with forty-eight varieties, closely followed by Messrs. G. Bunyard & Co., Maidstone. For twenty-four varieties the positions of these two firms was, however, reversed, the Maidstone Roses in this case being decidedly superior to the others in form, substance, and colour. In the former class Mr. F. Woolard, Cooksbury, was third with fresh but small blooms, and in the latter Mr. G. W. Piper, Uckfield, obtained a similar position. The most successful amateurs and gardeners were A. Slaughter, Esq., Steyning, and R. Burton, Esq., Hurstleigh, Tunbridge Wells, who contributed blooms of considerable merit. One interesting class was that for a collection of wild flowers accurately named, in which Miss Ware of Frant won leading honours with 201 species and varieties mostly correctly and neatly labelled, but a few slips like *Sinapsis*, *Sonchus oloraceus*, *Solanum Dulcamaria*, and *Digitalis aurea* were notable. Bouquets, buttonholes, and table decorations were all well shown, several tasteful designs being staged, though the stands of flowers were in most cases rather heavy.

Fruit.—In the principal classes for fruits the competition was keen and the exhibits of very good quality. Particularly noteworthy were the collections of fruit, which not only included fine samples of culture, but were also remarkable for tasteful arrangement. Mr. A. Henderson, gardener to F. Deacon, Esq., Mableton Park, deservedly won premier honours with a most excellent collection comprising fine bunches of Black Hamburg Grapes, Cherries, Strawberries, Raspberries, Gooseberries, Melons, Nectarines, Peaches, Red and White Currants, and a handsome Pine Apple. These were arranged in tin dishes covered with Vine leaves and placed in a square wooden tray also covered with leaves, the margin being a wreath of variegated Holly leaves. Mr. Fennell, who was placed second, had fine Black Hamburg and Buckland Sweetwater Grapes, with other fruits of good quality arranged in a square tray similar to the first. Mr. A. Waterman, gardener to H. A. Brassey, Esq., Preston Hall, Aylesford, was third with a tasteful arrangement of good fruits; and Mr. J. Hopgood, gardener to Sir J. Goldsmid, Somerhill, was a close fourth.

Black Grapes were well represented, ten competitors entering the class for three bunches. Mr. Henderson won with grand bunches of Black Hamburg, the berries large and finely coloured. Mr. Lewis Barnes, gardener to Lady Herschell, Hawkhurst, was second with Mrs. Pince's Muscat, well coloured; Messrs. T. Hopgood and G. Fennell were third and fourth, both showing Black Hamburg in fair condition. White Grapes, though equally numerous, were not so good as the preceding. Mr. W. Johnston, however, had moderate-sized bunches of Muscat of Alexandria fairly ripe; Mr. C. Adams, gardener to W. H. Trijo, Esq., Reigate Hill, being placed second

with three handsome bunches of Buckland Sweetwater beautifully coloured. For three bunches of distinct varieties Mr. Adams won chief honours with Buckland Sweetwater, Madresfield Court, and Foster's Seedling, all well ripened. Messrs. Johnston and Barnes followed, both showing fairly well.

Pine Apples, Peaches, Nectarines, and Melons were contributed by several exhibitors, the samples of the two first staged being especially good.

Vegetables and the cottagers' productions occupied a marquee of considerable size, and the majority of the exhibits were distinguished by their clean fresh appearance. The collections of vegetables were extremely fine, Messrs. Waterman, Barnes, Bolton, and Johnston being the prizewinners in the gardeners' class.

TWO MASDEVALLIAS.

FROM recent importations that pretty species of *Masdevallia* *M. Shuttleworthii* is now becoming much more abundant in gardens; and though it cannot be considered as a rival to such showy forms as *M. Lindeni* and *M. Veitchiana*, still it deserves to rank amongst the most interesting of the smaller-flowered species. It is a native of New Grenada, where it was found by Mr. Shuttleworth when travelling in search of plants, and it was first introduced to Mr. W. Bull's collection at Chelsea four or five years ago. It speedily attracted the attention of Orchid-growers, and now few collections of moderate size will be found without a few representatives. Like other species, this is found to vary in the size and colouring of the flowers, some being much finer than others. That shown in the woodcut, fig. 6, is from Mr. Dorman's garden at Sydenham, and is one of the best we have seen, though the woodcut fails to convey an accurate idea of its beauty. There is a peculiar delicate semi-transparency in the sepals which renders

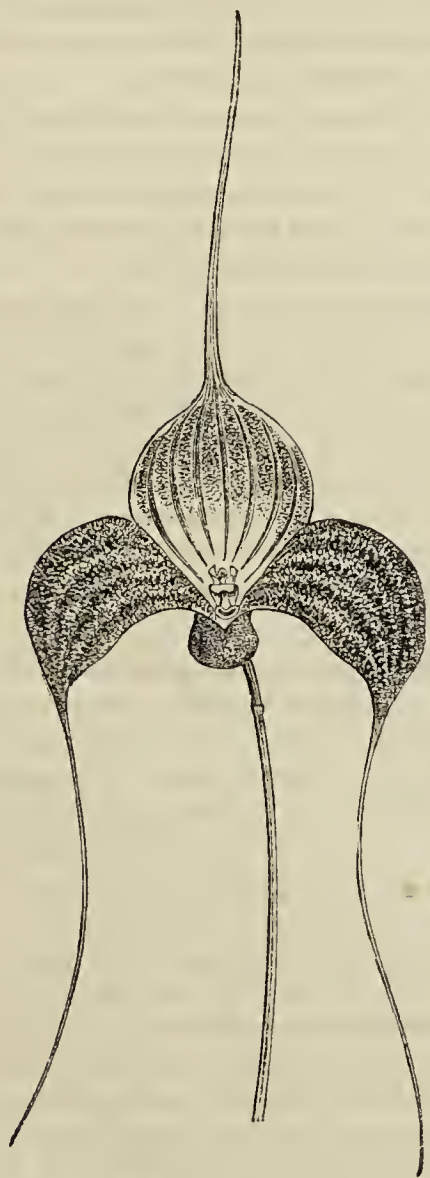


Fig. 6.—*Masdevallia Shuttleworthii*.

the numerous rosy purple dots which are thickly strewn over the surface very noticeable. It is dwarf, of easy culture, and extremely floriferous.

M. triangularis (fig. 7) is another notable species with small flowers, these being yellowish dotted with purple—a rather striking contrast of colours. It is also a South American form from

Caraecas, but it has been in cultivation much longer than the preceding. We believe that it first appeared in the Royal Gardens, Kew, but it has since passed into the hands of the nurserymen. The flower from which the woodcut was prepared was from one

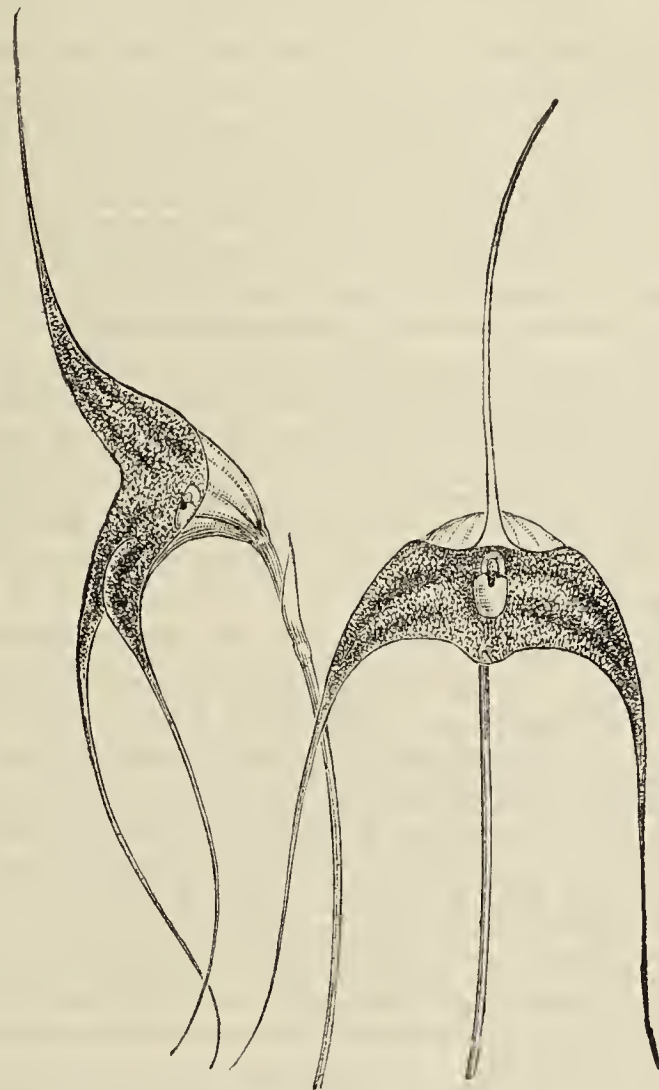


Fig. 7.—*Masdevallia triangularis*.

of Mr. B. S. Williams' plants at Upper Holloway, where it thrives well with the numerous other species forming that collection.

MUSHROOMS IN THE OPEN AIR.

IT may be useful to state that the present is the time to get the manure together and commence turning for outdoor, autumn, and winter beds. I shall begin the latter end of the week to turn my heaps for the first beds. There is no better method of preparing the manure than that so fully detailed in the Journal of May 25th, and no one can err if they follow carefully the instructions there given. It may also be well to state if those having Cucumber, Melon, or Vegetable Marrow beds now were to insert a few pieces of spawn round the outsides they would probably find how easy it is to raise a good supply of Mushrooms.—J. F. BARTER, *Lancefield Street, Harrow Road*.

[We have grown excellent Mushrooms by the simple practice recommended, and had an abundant supply the whole of last winter from a spent hotbed on which a frame was placed. The Mushrooms were produced with great freedom both inside and outside the frame for months, but that, we apprehend, was in a great measure due to the mildness of the winter; still, our experience of many years warrants us in recommending a trial of the simple method of Mushroom-growing referred to.]

OXFORD ROSE SHOW.

JULY 6TH.

THE Oxford Rose Society was established in 1851, and has held an exhibition each year without interruption successfully, save in the matter of weather, as on several occasions it has been very rainy. Started as an "amateur" society it maintained its position as such for some sixteen or seventeen years, when it was felt desirable to throw open its show to all comers, and a very wise step it proved, for some of its shows since have compared favourably with many exhibitions of larger means.

At the time of year the Rose shows are usually held Oxford may be said to be empty. The University and many of the principal citizens get away to the sea or mountains so soon as the academical year closes. This fact renders it at all times a matter of anxiety to the executive as to what conditions of weather they may experience in holding their annual display with the view of making it a financial success. Happily for them the various College gardens are at their disposal, and on the 6th of July the thirty-first annual Show took place in the gardens of Trinity College, and it had been arranged to hold the Show under the leafy vault of the far-famed "Lime Tree Walk," an avenue of pollarded Limes some 110 yards long, whose branches have become interlaced as to form a Gothic-like groined roof. These trees are known to be three hundred years old. To the north of this avenue stood another avenue of Yews, some few of which are still standing. Beneath this shady retreat the tables were set and prepared to receive the boxes of Roses; when, alas! within one hour of commencing the duties of making the awards rain fell so heavily that nothing short of stout canvas could resist it, and a general "all hands to the pumps" being called, tables, tressles, baize, class cards, &c., had to be transferred to the shelter of a large marquee.

With regard to the Show, it can be maintained that high quality prevailed throughout, the whole of the boxes on view being filled with flowers of large size, good form, and of deep tone in colour. The entries justified the hope of a large exhibition, but the day previous telegram after telegram announced the fact that several large exhibitors had been prevented, owing to the storms then prevailing; consequently but few of the "open to all England" prizes were competed for. The only large trade grower who put in an appearance was Mr. Charles Turner, whose boxes were very bright and well up to the exhibition standard.

There was no competition in Class 1, for forty-eight triplets, but in forty-eight and thirty-six single trusses Mr. C. Turner gained the chief awards. His forty-eight box contained Dupuy Jamain, Capitaine Christy, Prince Camille de Rohan, Victor Verdier, Lord Macaulay, Malame H. Jamain, Alfred Colomb, François Michelin, Mdle. Thérèse Levet, A. K. Williams, Marie Van Houtte, Baronne de Rothschild, Sénateur Vaisse, François Louvat, La Duchesse de Morny, Cathérine Mermet, Marguerite Brassac, Marguerite de St. Amand, Camille Bernardin, Mons. Noman, Mons. E. Y. Teas, Elie Morel, Ville de Lyon, Mdle. E. Verdier, Général Jacqueminot, Paul Neyron, Souvenir d'un Ami, Auguste Rigotard, La France, Mons. Gabriel Tournier, Abel Grand, Marie Baumann, Madame Laurent, Constantin Tretiakoff, Avocat Duvivier, Comtesse d'Oxford, Devonensis, Mrs. Harry Turner, Madame Lambard, Sir Garnet Wolseley, Edouard Morren, Beauty of Waltham, Louis Van Houtte, Countess of Rosebery, Abel Carrière, Madame Charles Crapelet, Madame Lacharme, and Duke of Edinburgh. The varieties in the thirty-six were similar, first prizes being awarded in each class.

For twenty-four Mr. John Walker, Thame, stood to the fore with fine clean blooms of Mdle. E. Verdier, Charles Lawson, Duke of Edinburgh, Duke of Wellington, Gloire de Dijon, Mabel Morrison, Lord Clyde, Charles Lefebvre, Marquise de Castellane, La France, Comtesse d'Oxford, Prince Camille de Rohan, Belle Lyonnaise, Duchesse de Caylus, Triomphe de Rennes, Lord Macaulay, Madame Charles Crapelet, Général Jacqueminot, Madame Victor Verdier, John Keynes, Mdle. Bonnaire, Marie Baumann, Jean Liabaud, and Madame Thérèse Levet. Mr. George Humphries, Kington Langley, Chippenham, proved a good second with fresh and bright examples of the leading varieties.

The class for twelve Hybrid Perpetuals, one variety, produced several fine sets of bloom. Dr. Bywater Ward, Warneford Asylum, Oxford, was first with grandly formed and pure Madame Lacharme; Miss Watson-Taylor, Manor House, Headington, Oxon, second with Marie Baumann; J. T. Strange, Esq., Aldermaston, Berks, third with Baronne de Rothschild. For twelve Teas several boxes were staged, and these of superior merit, Rev. E. L. Fellowes, Wimpole Rectory, Royston, Cambs, leading with splendid trusses of Anna Ollivier, Amazone, Souvenir de Paul Neyron, Madame Camille, Comtesse de Nadaillac, Catherine Mermet, Caroline Kuster, Madame Willermoz, Jean Ducher, Souvenir de Madame Pernet, Rubens, and Bouquet d'Or. Rev. E. P. Wellings, Stamford-in-Vale, was second with charming examples. The Judges pronounced this a splendid class.

In the second division, "not growers for sale," many good boxes were staged. The first prize in the class for thirty-six trusses fell to Miss Watson-Taylor for very even blooms, including A. K. Williams, Annie Wood, Auguste Rigotard, Beauty of Waltham, Capitaine Christy, Countess of Rosebery, Devienne Lamy, Dr. Andry, Duchesse de Caylus, Duchesse de Vallombrosa, Dupuy Jamain, Elie Morel, Ferdinand de Lesseps, François Michelin, Hippolyte Jamain, John Stuart Mill, Julius Finger, Madame Victor Verdier, Mdle. Marie Rady, Mdle. Marie Verdier, Marie Baumann, Marie Louise Pernet, Marquise de Castellane, Niphetos, Madame Gabriel Luizet, Mons. E. Y. Teas, Mons. Paul Neyron, Pierre Notting, Sénateur Vaisse, Sir Garnet Wolseley, and Star of Waltham. For twenty-four blooms Rev. E. L. Fellowes secured the chief prize with practically the same as in the preceding classes. Mr. A. Evans, Marston, Oxon, was second; and Mr. Jos. Freeman, Market Street, Oxford, third. For twelve blooms Dr. Bywater Ward was a good first with large well-formed examples; W. Wooten-Wooten, Esq., Headington House, Oxton, second; and Mr. John Allin, Sandford-on-Thames, third. In the division "ama-

teur members of the Society only" the classes were all closely contested. For twenty-four the card went to Rev. W. H. Jackson, Stagden Vicarage, Bedford; and Rev. E. P. Wellings, Stanford Vicarage, Faringdon. For eighteen, Mr. A. Evans, Marston, first; Mr. J. Freeman, Oxford, second; Mr. C. Taylor, Headington, Oxon, third; and Mr. W. Narroay, Headington Quarry, Oxon, fourth. For twelve, Mr. A. Evans again first; Mr. Narroay second; and Rev. H. A. Pickard, Canterbury Road, Oxford, third. For nine, Mr. C. Colcutt, Holywell, Oxford, first; Mr. Thomas Wheeler, Kingston Road, Oxford, second; and Mr. T. Freeman third. For six, Mr. Walter Harris, 17, Kingston Road, Oxford, first; Mr. F. Harris, Walton Crescent, Oxford, second; Mr. E. Collins, 5, Grove Street, Oxford, third. For twelve triplets, Mr. Joseph Freeman and Rev. E. P. Wellings divided the honours; while for six triplets, Mr. C. Colcutt first, Mr. Thomas Wheeler second, and Rev. E. L. Fellowes third. For six trusses of one variety Mr. A. Evans took the card with Baronne de Rothschild, Rev. E. L. Fellowes second with Catherine Mermet, Mr. C. Taylor third with Marie Baumann, and Rev. W. H. Jackson fourth with Capitaine Christy. For one bloom, Mr. C. Colcutt was first with Marie Baumann, Mr. A. Evans second with Alfred Colomb, and Mr. F. Freeman third with Madame Willermoz.



AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY held July 11th, 1882, George F. Wilson, Esq., F.R.S., in the chair, the following candidates were elected Fellows—viz., Henry John Blagrove, William Beriah Brook, Miss Agnes Grainger, Fred T. Mappin, M.P., James Pink (Director of the Botanic Gardens, Brisbane), and Lieut.-Col. R. F. Webb.

— WE are desired to state that the bloom of Edouard Morren, which won the National Rose Society's medal at the REIGATE SHOW, was not in Mr. Haywood's stand, but in Mr. Waterlow's second-prize box of nine blooms, which box was inadvertently credited in our report to Mr. Wilkins.

— A CORRESPONDENT writes:—"For several weeks CHLORA GRANDIFLORA has been one of the most striking plants in the ornamental house of the Cambridge Botanic Garden. Those who know our British *C. perfoliata* can imagine what this may be, as it is only a fine variety. The bright golden flowers are extremely showy among other decorative plants. It submits readily to pot culture, and, indeed, seems to be much finer under glass. Seeds should be sown early in the autumn, so as to produce stocky plants before winter. If sown too early it flowers weakly the same season."

— "UNDOUBTEDLY," observes the same writer, "the FINEST HARDY WATER LILY is NYMPHÆA CANDIDISSIMA. Its flowers measure 6 inches across, while those of the common *N. alba* growing close to it measure only 3 inches. The petals, too, are much broader, and the centre is of deeper yellow colour. It was contributed to the Cambridge Botanic Garden by Mr. Parker."

— RESPECTING the ORIGIN OF MARÉCHAL NIEL ROSE, Dr. Penjade writes in the *Revue Horticole* that it was raised by M. Pradel, a florist at Montauban in the South of France. M. Pradel states that he raised it from seed sown by himself, and that having grafted many stocks with it, he planted one of them in the garden of a M. Chateau, where it was observed by M. Rapin, Director of the Registry at Montauban. M. Rapin took it to an exhibition of the Horticultural Society which was being held at the time, and on the 3rd of May, 1862, the Jury, presided over by M. Helye of Paris, awarded a medal to M. Pradel, jeune, for the exhibit. The Rose received the name of Maréchal Niel in compliment to the Maréchal, who in the month of June previously had presided at the opening of the Garden of Horticulture and Acclimatisation of Tarn-et-Garonne at Montauban. The Rose was sent out by M. Pradel in 1863.

— SOME fine examples of CARTER'S LEVIATHAN BEAN have been sent to us. The shortest pod was 11 inches in length, and the longest exceeded a foot. This indicates that the variety is an excellent one for exhibition purposes. The beans were also of good size and quality.

— THE first attempt of the Royal Agricultural Society at an EXHIBITION OF MARKET-GARDEN PRODUCE was not encouraging if we may judge by what was shown at Reading on Monday last. In a tent set apart for the purpose, and which had a table round the two sides, we found as many vegetables as would have furnished a greengrocer's stall in any good market town in England. There were about a dozen half sieves of Potatoes and some Cabbages, a round basket full of Cauliflower, three baskets of Peas, a heap of young Onions, a few more Cabbage, and about a couple of dozen of Cabbage and Cos Lettuce. The fruit consisted of three boxes of Apples, two baskets of Cherries, one basket of Red Currants, two of Black, and one of Gooseberries. It was a relief to linger over the splendid exhibitions of seeds and roots that were made by Messrs. Sutton & Sons, Messrs. James Carter & Co., and Messrs. Webb of Wordsley.

— WE are gratified to hear that His Grace the Duke of Northumberland has promoted Mr. JOHN WOODBRIDGE, who has for so many years acted as gardener, to the office of Steward of the estate at Syon. This mark of confidence in one who has so well fulfilled his trust reflects great credit on His Grace, while he honours his faithful servant. Mr. Woodbridge still retains the superintendence of the gardens in connection with his new office, which we wish him long life to enjoy, for we do not wish to see for many years inscribed on his tombstone, as there is on that of Mr. Thomas Hoy, a former gardener at Syon, "Here lies an honest man."

— AN excellent sermon by the Rev. William Brown Keer of Heywood, Wilts, has been sent to us. The subject is "THE TILLAGE OF THE POOR." We can appropriately cite one passage.

"By the expression 'tillage of the poor,' we may understand those small holdings, or plots of ground, which in the East are cultivated as vineyards and Olive yards, or gardens of Maize or Cucumbers; and among ourselves as gardens or allotments for the growth of corn, fruits, roots, or vegetables. 'I cannot afford to grow weeds, I have too little land and too many mouths to feed,' said a labourer to me the other day, when I complimented him on the cleanliness of his allotment; and he added, 'I want all the corn, the roots, and the vegetables, and more than I can grow.' He was right. It is unprofitable, in more senses than one, to grow weeds; they exhaust the soil, choke the crop, and yield pernicious seed. Two or three, or even four crops a year, in well-chosen succession may be had in the same garden plot, while the large and wealthy farmer grows but one. What farm, indeed, on a large scale can be cared for half so diligently or effectually? And then, what of the result? A rod or perch of ground, commonly called here a 'lug,' or the 160th part of an acre, has, I am told, been known to produce a yield of nearly if not quite half a bushel of Wheat, or at the rate of very nearly twenty sacks an acre. Verily, 'Much food is in the tillage of the poor.' There is an old rhyme to this effect—

"Plow deep, while sluggards sleep,
And thou shalt have corn to sell and to keep."

Nothing is said to repay diligent labour so well as the soil. Here, if anywhere, the proverb is true, 'He becometh poor that dealeth with a slack hand; but the hand of the diligent maketh rich.'

— AT the NATIONAL ROSE SOCIETY'S SHOW held last week at South Kensington, Mr. T. Hobbs, Lower Easton, Bristol, was awarded an equal third prize with Mr. Evans in the amateurs' class for twenty-four blooms, this award not being included in our report of the Exhibition.

— MR. JAMES MCINTOSH has sent us from Duneevan flowering sprays of the charming ROSA BRUNONII. Now that single flowers are so popular for decorative purposes this Rose might with advantage be more freely grown. Its white flowers are produced in large bunches; and a plant, or tree as at Duneevan, when laden with flowers is very beautiful, and the perfume it

diffuses is delicious. It is classed as a climbing Rose, but it shows to greater advantage when grown as the wild Rose grows in the hedges, as severe pruning is not promotive of free blooming. We do not know whether this Rose is hardy in the north of England. It is a native of Nepal, whence it was introduced by Dr. Wallich in 1822.

— THE tenth annual Show of the WIMBLEDON HORTICULTURAL SOCIETY, held on the 5th inst., was, we are informed, an excellent one. Messrs. Veitch exhibited a hundred Roses in pots and splendid boxes of cut blooms, the chief prizes in the Rose classes being won by Mr. Wilkins of Sutton and Mr. Moorman of Coombe Bank, who were respectively placed first with twenty-four and twelve varieties. In the open class for miscellaneous groups of plants, open to all, Mr. Runnacles, gardener to Mrs. Schuster, was the premier winner, Mr. Bridger, gardener to L. Walker, Esq., being first in the members' class. Mr. Bentley, gardener to Sir T. Gabriel, was the most successful exhibitor in the specimen-plant classes; Messrs. Davis, Bentley, Dove, and Cole were among the chief prizewinners in the fruit classes; and Messrs. Star and Bentley were awarded first honours for collections of vegetables. Among the several donors of special prize were Lady Peek and Sir Trevor Lawrence, and thus under the encouragement that is given the excellent character of the horticulture of the district is likely to be maintained.

— A CONE-BEARING branchlet of ABIES WEBBIANA has been sent us, and it is so extremely beautiful that it is a pity this fine Silver Fir is so liable to injury by spring frosts. The cone is large, cylindrical, purplish black in colour, and contrasts effectively with the silver under surfaces of the foliage. An excellent and characteristic figure of a cone and spray of this Conifer is given on page 109 of Messrs. Veitch's valuable work on the Coniferae, from which we cite the following:—"A. Webbiana is considered tender in many parts of England; it begins to grow early in spring, and this early growth is often cut off by frosts later in the season; but if young plants are protected by a slight covering at the time these frosts occur—and so small an amount of trouble is well worth taking to preserve so beautiful a tree—the injury may be prevented, and as the plants become established by age they also become more acclimatised. Many fine specimens growing in various parts of England attest this; the lower branches of the largest of these have attained lengths of from 15 to 18 feet, so that in selecting a situation for this tree a space having a radius greater than these dimensions should be allowed for it. The specific name was given by Dr. Wallich in compliment to Captain W. S. Webb, 'a distinguished traveller and zealous investigator of natural history,' who first discovered it in the Himalayas." A beautiful violet dye is said to be extracted from the cones.

— THE circular appended has been issued TO THE FELLOWS OF THE ROYAL HORTICULTURAL SOCIETY:—"In their circular to the Fellows of the 27th March last, the Council stated they were endeavouring to enter into negotiations with the Commissioners for the Exhibition of 1881, with the object of effecting an arrangement which would be in strict accordance with the trusts upon which the Commissioners hold their property, mutually advantageous to the Commissioners and the Society, and beneficial to the public. With this view the Council proposed that a joint committee of the two corporations should be formed to consider their future relations. This proposal was accepted by the Commissioners, but the Committee which has been appointed to give effect to it has not yet met, as it was found necessary, before such a meeting could be usefully held, to settle terms between the Society and the Executive Committee of the Great International Fisheries Exhibition, 1883, to whom the Commissioners had granted the use of part of the South Kensington

Gardens for the purposes of their Exhibition, reserving for themselves that portion known as the Ante-Garden, of which they intend to resume possession. The Council are happy to report that the friendly spirit in which the Executive Committee met them has enabled them to make a satisfactory working agreement with the Fisheries, which, whether the ulterior negotiations with the Commissioners are successful or not, secures to the Society, subject to the user required by the Fisheries, the ornamental part of the Gardens which lies to the north of the circular basins, until the end of the year 1883. The Council are not in a position to anticipate the result of these negotiations, but they believe the Commissioners wish to act liberally towards the Society, and they have no reason to anticipate that its connection with South Kensington will cease after 1883. As some further time must elapse before the negotiations with the Commissioners can be completed, the Council think it right to issue the foregoing statement for the information of the Fellows."

— MESSRS. BROOKES & Co. of Manchester, the makers of the tubular flower stakes referred to on page 425 of our last volume, send us the following note:—"We observe that a desire is expressed for LIGHT WIRE FLOWER STAKES of less than 2 feet in height. To meet this want we have designed a new wire stake with a foot and convenient top, and beg to send you a specimen for your examination and judgment. We have tested it practically, and think we find it strong, neat, stable, and certainly it will be very cheap." These stakes will be serviceable to many. The circular projection about 8 inches from the point will impart stability, but the loop at the top is much too large, if needed at all.

— WE are informed that Mr. Sydney Woods has succeeded Mr. Raffill as gardener to Lord Tredegar, Tredegar Park, Newport, Monmouthshire.

— THE following paragraph has been sent to us, which we readily publish:—"It has been proposed to hold a CARNATION AND PICOTEE SHOW AT OXFORD, in connection with the Exhibition of the Royal Oxfordshire Horticultural Society, on August 2nd, the Show to be regarded as supplementary to that of the National Carnation and Picotee Society, which takes place at South Kensington on July 25th. We understand that Mr. E. S. Dodwell has been requested to make the necessary arrangements for carrying out this proposal, which has our hearty concurrence, as it will provide, in consequence of the later date, a more favourable meeting ground for northern and southern growers than the meeting at Kensington will do. To provide the necessary prizes it is suggested that the two above-named Societies should each vote ten guineas towards a fund to be raised for that purpose, and that the remainder, about a similar sum, shall be raised by special subscription—say one-half from friends of the Oxford Society, and one-half from friends of the National Society. We cannot doubt the needful aid will be forthcoming, and we are heartily glad that Mr. Dodwell's health and strength has been so much recruited by his residence in the country that he is able to undertake the supervision of the arrangements. Several donations have been already promised, and a schedule of prizes has been issued."

— WRITING in reference to BORDER AURICULAS a correspondent of the "Gardener" observes:—"The border Auricula is not cultivated to the extent it should be. True there are not many herbaceous borders where samples of the 'Dusty Miller' are not to be found. But there is no comparison between the older and commoner kinds and the great, robust, rich-coloured kinds that are now to be had, and we doubt if there exists another perfectly hardy plant with so many claims. Less refined it may be than the edged show varieties, or even the hardier named Alpines, although it is itself included among the latter ;

but against that there is to be placed the fact that a good strain is more robust, more floriferous, and possessing colours as rich, as varied, and as effective. Then it requires neither frame nor pots, special situations, nor special soils. Moreover, a stock can be got up with greater speed, or indeed be created. A packet of seed if from a good strain will produce numbers of beautiful forms, and when once a stock is secured the road is open, for then one has only got to select what pleases, and seed from such, to get any number of plants in a year or two."

— A CORRESPONDENT writes us that "the July monthly meeting of the TOOTING HORTICULTURAL SOCIETY was a great success, the members well responding to Rule 1. Among the most noteworthy exhibits were some grand Gloxinias from Mr. Todman, measuring upwards of 2 feet diameter and carrying between eighty and ninety flowers: they received a cultural commendation. A fine Hydrangea from Mr. Eade was similarly noticed, as also was a very handsome Melon called Prizetaker. New plants were represented by a very fine and distinct dark Fuchsia from Mr. Bunby, the new curled Golden Feather sent by Mr. Gower, and a beautiful and most profusely flowered Pelargonium of the decorative type from Mr. Todman: these were granted certificates. Amongst cut flowers were good examples of seedlings and hybrids consisting of Gloxinias, Begonias, Fuchsias, Zonal Pelargoniums both single and double. Herbaceous plants were also well shown."

WEST KENT HORTICULTURAL SHOW.

JULY 8TH.

FOR some years the annual Exhibition of this Society, held either in Bickley or Chislehurst, has been especially distinguished by the number, extent, and choiceness of the groups contributed by metropolitan nurserymen, which have indeed formed one of the principal features of the Show. On this occasion, however, notwithstanding the fact that the pleasantly situated grounds of Camden House were selected for the site, there was a considerable falling-off in this respect, the marquees devoted to the exhibits having in consequence a rather bare appearance. Some compensation for this deficiency was, however, to be found in the excellence of the plants and other productions staged in competition, for the majority of the principal classes were very well represented. Four spacious marquees were devoted to the exhibits, one containing the table decorations—always abundant and good at this Show; in another the cut flowers, fruit, and vegetables were arranged; the third and fourth comprising the specimen plants and groups, which were all carefully and effectively disposed. Most unfortunately, the weather in the early part of the day was extremely unfavourable, heavy showers of rain occurring at short intervals.

Plants.—The principal class in this section was that for "a collection of stove and greenhouse plants to be staged with a frontage of 10 feet," as it is rather vaguely described in the schedule; a further clause, however, stating that the prizes will be awarded to those "which are staged with the greatest taste and symmetry, at the same time the quality of the exhibits will receive careful consideration." It was quite evident from the collections shown that the exhibitors had not all taken the same view of this stipulation, and in consequence the awards of the Judges would give dissatisfaction to some. If the Society really wishes for groups arranged for effect why is it not plainly stated? None of the groups staged could be considered as remarkable for the taste displayed in the arrangement, but at least two included some well-grown plants. The first-prize collection from Mr. Kent, gardener to F. Heritage, Esq., Orpington, was, it is true, distinguished by a little more freedom and taste in the disposition of the plants; but these were not very select, nor were they in first-rate condition generally. Another defect was the comparative scarcity of flowering plants, the preponderance of Palms and Ferns imparting a dull appearance to what might have been easily made an effective group. Mr. Gibson, gardener to J. F. Burnaby-Atkins, Esq., Halstead Place, was placed second, and it is an open question whether his collection was not entitled to a higher position; for though the plants were large for arranging to the best advantage, and rather too great a formality characterised the group, yet the plants were of such excellent quality, so healthy, neat, and well flowered, that many could not understand their secondary position. Mr. Mitchell, gardener to Mrs. Arbuthnot, Bridgend, Bexley, was placed third, also with healthy plants, but much too large for effective grouping.

Stove and greenhouse plants were represented by several collections of moderate-sized specimens, prominent amongst the best being the premier six from Mr. Gibson, which comprised Allamanda Hendersoni, Dipladenia Brearleyana in superb condition, the latter beautiful

plant being especially notable for the abundance of its large and richly coloured flowers. Mr. Mitchell followed closely with six good plants, *Dipladenia profusa* being very handsome, *Vinca alba* and *Allamanda grandiflora* also were fine. The last-named exhibitor was an excellent first with four handsome *Fuchsias*; Hugh Miller, Earl of Beaconsfield, and Display were particularly well flowered, though of moderate size. Mr. H. Cole, gardener to T. A. Mitchell, Esq., The Woodlands, Chislehurst, was a good second. *Achimenes* were well shown by J. Scott, Esq., Abbyfield, Bickley, who took the principal prize for six specimens; *coccinea*, Carl Woolfarth, and *longiflora alba* were admirably flowered. Messrs. Bridger and Kent were respectively second and third with collections of similar quality. Tuberous *Begonias* were chiefly staged by Mr. Bridger, who gained the leading position with six plants fairly well flowered, but the others were rather thin. Messrs. Scott and Bridger had the two best collections of *Gloxinias*—healthy plants flowering most freely. The second lot included several good unnamed seedlings.

Fine-foilage plants and Ferns, though not of unusual size, were generally of excellent quality, a most pleasing freshness distinguishing the majority of the exhibits in these classes. For six fine-foilage plants Mr. H. Turner, gardener to A. Phillips, Esq., Elmstead Lodge, won the first prize with vigorous even examples of *Maranta Lindenii* very fine, *Alocasia albo-violacea*, *Pandanus Veitchii*, *P. utilis* healthy and large, and *Colocasia antiquorum* in first-rate condition. Mr. Mitchell was a good second, his best plant being a fine *Maranta bella*; and Mr. Kent was third, *Stevensonia grandifolia* being highly effective in his collection. Messrs. Mitchell and Turner were also the prizetakers in the class for six exotic Ferns, the first-named having *Adiantum cuneatum*, *A. macrophyllum*, *A. gracillimum*, and *A. farleyense* very fine, with a good *Gymnogramma chrysophylla*. Mr. Turner had a neat specimen of *Lygodium scandens* and a large healthy example of *Platynerium alcinorne*. For a single specimen Fern Mr. Mitchell took the lead with one of the finest specimens of *Gymnogramma Wetenhalliana* we have seen; it was about 4 feet in diameter, and as healthy as could be wished. Mr. G. Grant, gardener to Mrs. R. Johnson, Kennel Manor, Chislehurst, was second with a similarly creditable *Adiantum farleyense*; and Mr. T. Spittle, gardener to W. A. Bradford, Esq., Elmhurst, was third with a fine *Adiantum cuneatum*. *Caladiums* were represented by plants of moderate size, but healthy and well coloured. Mr. Kent won the first prize with good examples of *Belleynei*, *Bicolor splendens*, *Chantinii*, *Max Kolb*, and *Houlletii*. Mr. W. Gammon, gardener to C. Brosey, Esq., Bickley, was awarded an equal first for plants of similar quality.

Cut Flowers.—Roses were the most abundant amongst these, Messrs. B. R. Cant, Colchester; Paul & Son, Cheshunt; Rumsey, Waltham Cross; G. Bunyard & Co., Maidstone; and Laing & Co., Forest Hill, being the chief prizetakers in the nurserymen's classes, while in the amateurs' division Mr. G. Christy, Brookhurst Lodge, Westerham, and the Rev. J. M. Fuller, Bexley Vicarage, were the most successful. A class was provided for the best collection of hardy flowers, number unlimited, and two very interesting and beautiful stands were contributed. Mr. F. Maynard, gardener to J. Whitehead, Esq., Southwood, Bickley, was worthily adjudged chief honours for a collection of over sixty choice and beautiful species and varieties. Mr. Cole, gardener to T. A. Mitchell, Esq., Chislehurst, followed with a smaller but pretty collection of forty-eight distinct forms.

Fruit was well shown by Messrs. A. Waterman, G. Tucker, and Mitchell, who had the best collections. Grapes and Strawberries were of good quality generally. Vegetables were also represented by several collections of more than ordinary merit.

CARTER'S DEDHAM FAVOURITE AND VICK'S CRITERION TOMATOES.

I SEND you a sample dozen of Carter's Dedham Favourite Tomato. This is an undoubted acquisition, being good for cropping either in warm or cool houses, and is useful for pots. The dozen weigh $4\frac{1}{2}$ lbs., and as the fruits are not large you will see what a solid heavy variety it is. I am very pleased with it. The flavour is good, though not equal to that of Vick's Criterion, of which I send two fruits. Taste these two varieties in their raw state and you will at once perceive which is the best. The taste for Tomatoes, which is doubtless acquired, is fast increasing. I grow ten good varieties, but none equals Vick's. Speaking of new varieties, I wonder how many were "bit" over President Garfield. I, for one, consider it worthless and utterly unworthy of its name. Reverting again to Dedham Favourite, it is a very moderate grower compared with Vick's: this is worth knowing. With me the latter requires no feeding, and is benefited by cutting a good portion of the leaves away.—STEPHEN CASTLE, *West Lynn Vineyard*.

[The fruits of Dedham Favourite are remarkably fine. They are round, smooth, solid, of the same colour as Vick's Criterion, and by many persons would not be considered inferior in flavour to that variety. Tastes vary. Vick's is sprightly and sub-acid. The Dedham Favourite less acid, and possessing more of the true Tomato flavour; perhaps too much for some palates, but not for

all. The fruit of both are very firm and fleshy, and the plants have undoubtedly been well cultivated.]

SUTTON ROSE SHOW.

I HAVE to-day (July 7th) assisted at the inaugural Show of the youngest-born child of the National Rose Society, for I believe the parentage to be undoubted; and am glad to say that it is a most promising infant, showing considerable strength of limb, and if I mistake not likely to make itself soon heard in the rising suburb—for it is almost that of our huge city—Sutton, known to all frequenters of Epsom, and in their new and handsome Public Hall the first Exhibition was held. It had, of course, the deficiency of all first shows. Persons who do not know what exhibition Roses are, sent in boxes which only provoked a smile, but there were others there which would not disgrace any show, while I have certainly not seen this year anywhere such exceptionally good baskets and stands of Roses as were exhibited by the ladies of the neighbourhood, who may well be congratulated on the great taste displayed in their arrangements. The indefatigable Secretary of the Society, Mr. E. Wilkins, carried out all the management, assisted by a good working Committee, on the lines laid down by the National Rose Society, and everything went smoothly and well. The orchestra was most tastefully arranged by local nurserymen, and a most charming effect it had, and altogether the Show was a great success. I now give the names of the winning flowers. In Class 1, for eighteen varieties, Mr. E. Wilkins gained the first prize, given by Lady Lawrence, with good blooms of *Marie Finger*, *Comtesse d'Oxford*, *La France*, *Edouard Morren*, *Alice Dureau*, *Star of Waltham*, *Marquise de Castellane*, *Hippolyte Jamain*, *Dr. André*, *Gloire de Dijon*, *Duke of Edinburgh*, *Constantin Tretia-koff*, very good; *Marquise de Ligneris*, and *Marie Baumann*. In Class 2, for twelve varieties, the first prize was gained by Mrs. Thompson with *Jean Cherpin*, *Abel Grand*, *Annie Wood*, *Dr. André*, *Aurore Borealis* (a Rose I never heard of before), *Reine du Midi* (another Rose seldom seen), *La France*, *Abel Carrière*, &c. In Class 3, for nine blooms, Mr. E. Mawley took first prize with an excellent stand containing *Star of Waltham*, *Etienne Levet*, *Charles Lefebvre*, *Baronne de Rothschild*, *Pierre Notting*, *Madame Eugénie Verdier*, *Countess of Oxford*, *Dr. André*, and *Marie Baumann*. In Class 4, for six varieties, Mr. F. C. Poole was first with *Capitaine Christy*, *Dupuy Jamain*, *Duke of Edinburgh*, *Abel Grand*, *Le Havre*, and *Madame Gabriel Luizet*. In Class 5 Mr. H. Boulte was first. In Class 6, for six Teas or Noisettes, Mr. Cuthell was first with excellent blooms of *Catherine Mermet*, *Anna Ollivier*, *Marie Van Houtte*, *Madame Lambard*, *Perle des Jardins*, and *Souvenir d'un Ami*; he had also an extra box, in which was an excellent bloom of *M. Nabonnand*, very dark but rather thin. In Class 8, eight varieties, trebles, Mr. F. C. Pawle of Reigate was first with good blooms of *Cheshunt Hybrid*, *Marguerite de St. Amand*, *Marquise de Castellane*, *Victor Verdier*, *Prince Arthur*, *Beauty of Waltham*, *Alfred Colomb*, and *Marquise de Castellane*. In Class 9, four trebles, Mr. E. Wilkins was first with *Marie Finger*, *Paul Neyron*, *Etienne Levet*, and *La France*. In Class 10, for six trusses of any Rose, Mr. E. Mawley with *Baronne de Rothschild*, and Mr. Cuthell with *Alfred Colomb*, were equal firsts. In Class 11 a silver challenge cup, given by ladies, the prize was won by Mr. E. Wilkins with *Marie Baumann*, *Star of Waltham*, *Victor Verdier*, *Catherine Mermet*, *Prince Arthur*, and *Marie Finger*; this also obtained the silver medal of the National Rose Society for the best box in the Show, and to Mr. Wilkins was awarded also the bronze medal for the best bloom, a splendid bloom of *Marie Finger*.

As I have said, devices were exceedingly well shown. Miss Foulger obtained the first prize with fine baskets in ebonised stand, very tastefully arranged; and Mrs. Atkinson the second prize with a handsomely arranged basket, in which were Roses and *Adiantum gracillimum* gracefully arranged.

I am glad to hear that the Show was thoroughly appreciated, and that the room was crowded to a late hour, and all interested in it must be congratulated on a very successful first venture—the precursor, I hope, of many others.—D., Deal.

ORCHIDS IN JULY.

THE work of this month will be a continuation of that of last. The houses are very attractive with the many plants in bloom. *Aerides quinquevulnerum* is now bearing its compact pendent spikes of white and purple flowers, which last for about three weeks. *Aerides roseum* is a dwarf plant, and very pretty with its fine spikes of rose-coloured blooms. We find this does best in a basket hanging about a foot from the glass, and requiring less water than the other *Aerides*. *Aerides affine* is blooming well, and somewhat resembles *A. roseum*, but the flower spikes are longer and in many cases branching. It lasts in bloom for about a month.

Barkeria spectabilis is opening its lovely rosy lilac flowers, which will remain in perfection for nearly three weeks.

Cattleya gigas, without doubt the finest of all the known *Cattleyas*, is in good condition. It produces from two to five large handsome rose-coloured flowers with deep purple lip on a spike, five, however, being rather the exception than the rule. There is

an imported variety sold under the name of *C. gigas Sandersiana*, which, judging from the old flower seats, has borne as many as nine blooms on a spike. This will be anxiously looked for when established in this country. *C. Harrisoniana* is producing its beautiful rose-coloured blossoms, and is always a welcome addition to the *Cattleya* house when grown well. We find it succeeds best with a good drainage of charcoal and crocks, with good knobs of rough fibrous peat placed on the top, and grown in a light position at the warmest end of the house, with a moderate supply of water.

Lælia grandis, with its beautiful nankeen-coloured flowers lasting a long time in bloom, and *Lælia Schilleriana* bearing lovely flowers with rosy white sepals and petals and dark purple lip, are blooming freely. *L. crispa* is pushing its flowers up the sheaths, promising a rich display shortly of its large pure white crimson-lipped blossoms, which are doubly invaluable from their being deliciously scented.

Maxillaria grandiflora is nearly always in bloom. In cases where parties have a few specimens of this beautiful Orchid they are hardly ever without one of its large snow-white purple-lipped flowers. *M. luteo-alba* is now handsome with its large creamy white blossoms. *Mesospinidium vulcanicum* is producing its fine spikes of numerous pretty fiery red blooms, and makes a lovely basket plant.

The cool house is still rich with the pure white crispy flowers of *Odontoglossum Alexandræ*, the yellow purple-spotted blossoms of *O. astranthum*, the curious green and brown blossoms of *O. bictoniense*, the citron-scented rosy-white blossoms of *O. citrosum*, the chocolate-barred greenish-yellow of *O. cordatum*, the brown-spotted delicate white of *O. Ehrenbergii*, the sweet-scented greenish-yellow and purple flowers of *O. læve*, the crimson-sprinkled pure white of *O. nævium*, the snow white brown-clouded blossoms of *O. nebulosum*, the delicate rosy white of *O. Pescatorei*, the white-lipped yellow-coloured blossoms of *O. radiatum*, the fragrant milky white purple-spotted flowers of *O. Roezlii*, the lovely lake-carmine of *O. roseum*, the reddish-coloured white-lipped blossoms of *O. rubescens*, the straw-coloured *O. Schlieperianum*, and the large delicate-coloured flowers of *O. vexillarium*.

Promenæa stapelioides.—This curious little Orchid looks well now with its greenish-yellow purple-lipped flowers, and does well in pans with sphagnum and rough fibrous peat, and grown near the glass.

Thunia alba.—This free-flowering plant is attractive with its beautiful pure white blossoms, as is also *Thunia Bensoniæ* with its large bright magenta blossoms. These do best in baskets with sphagnum, peat, and sand, and kept close to the glass, with a plentiful supply of water.—ORCHIDIST.

WEATHER FORECASTS.

I WAS pleased to see in the "Notes and Gleanings" column the quotation of Mr. Fawcett concerning the advisability of gratuitous weather forecasts by telegraph to agriculturists, because it offers an opening for a few remarks on the subject. As Mr. Fawcett evidently realises, the farmers are not alone interested in the possible state of the weather, but the followers of other professions, more especially that of gardening, would be equally glad of reliable information day by day. Unfortunately the weather forecasts as given in the daily papers are anything but reliable. Science is working wonders in all directions—more so, indeed, than many of us realise; but I am afraid it will never be sufficiently advanced to forecast the weather in any particular district. For that reason I advise all concerned to study the local signs and indicators, and to found their decisions on these rather than to rely upon those who can only give general information extending over a large area, such as the "south-western counties."

Thunderstorms at this time of the year we most dread, and what can our oracles tell us concerning these? Take for instance, out of the many I could adduce, the forecast for "England S.W. and South Wales," in which we are included, on Monday, June 26th. This was "Southerly to south-westerly winds, moderate; cloudy to fair." On that date we experienced three hours' heavy thunder rain, while within seven miles in one direction a cricket match was not hindered in the least, and the same phenomenon occurred in various parts of the country. The forecast in this instance was actually misleading, and I maintain they are generally vague and unreliable, comparing most unfavourably with a good barometer. One of these ought to be seen in every farmer's and gardener's house, and when thoroughly understood—I mean with regard to their indications—would prove invaluable. With its help the farmer would better know what to do with his hay and corn, and the gardener at this time of the year whether to be planting Celery, Broccoli, and other plants throughout the day, or

to prepare for fruit-picking, hoeing, and similar work necessarily or best performed on a dry day.

I possess a "wheel" barometer, and am also provided with a "cistern" barometer, and seldom decide upon any important work without consulting one or both of these. The former—which I consider the most serviceable, as by tapping its movements are anticipated—is hung on the outside wall of the living-room, and in this position it is more sensitive. No doubt this position causes a greater range, but this is immaterial, as I do not trouble to contrast the figures with those given by the qualified authorities. The cistern barometer is hung where barometers are generally disposed—viz., in the front hall; but I best understand the movements and indications of the dial-faced cistern, and generally depend upon that alone. Even in the case of a barometer it is difficult to formulate a general rule for the guidance of those interested, as so much depends upon the locality. I find a falling barometer does not always indicate wet, or the opposite movement fair weather, as we may experience heavy rains with the indicator or mercury, as the case may be, at 29.5 and much dull, if dry, weather at 30.4. Last winter the indications were remarkably abnormal; but, as a rule, by smartly tapping the barometer in the morning I can almost feel certain if the weather will be dull yet fine, showery, very wet, or clear and bright, and more than this I do not believe science will furnish. As a matter of fact, much has to be determined by the direction of the wind, and it must also be known from what quarter the most rain generally comes. Given a good barometer, and farmers and others need not solicit any aid from the Government. On July 1st the weather forecast reads "England S.W. and South Wales, north-westerly breezes, light; fine." This was right enough with regard to the direction of the wind, but two hours' thunder rain commencing about 1 P.M. was not agreeable to the haymakers or consistent with the forecast.—W. IGGULDEN, *Marston, Frome*.

THE BEST ROSE IN THE SHOW.

To look for this is now the concluding act at almost every Rose show, and it reaches its climax at the meetings of the National Rose Association. To find this on July 4th was no easy matter, as the Roses were a trifle past their best, and July 1st had perhaps seen that in southern England. There was no Rose of surpassing excellence like the A. K. Williams of 1880, which settled the matter at once. The Rev. H. H. D'Ombrian, as usual, was equal to the occasion, and, assembling round him his array of Judges in the beautiful conservatory of the South Kensington Gardens, dispatched no less than four through the corridors on this special errand. We agreed to go two and two by different ways to note down what we found, and compare when we met, and this year the nurserymen quite beat the amateurs. The tables of the last three years were completely turned. The "great twin brothers" of former Rose shows were gone, and their places were still empty. One of them as a judge might still be seen flitting round the scene of his former triumphs, but too well-known circumstances prevented even the appearance of one other champion; nor had we even the genial presence and weighty battalion of our President, even though he was represented by his Vice, Mr. George Baker of Reigate.

When Mr. Mount and myself met Mr. Cuthell and Mr. Sladden both had found the best Tea in the Exhibition, and, as might be expected, it was *Souvenir d'Elise Vardon*. They were almost equal, but Mr. Cant's carried the day through a graceful bud and better foliage. The *Noisettes* were again, as usual, not satisfactory. No *Maréchal Niel* really worthy of its name was in the Exhibition. A wonderfully good *Narcisse* was found, but what is *Narcisse* even at its best? Then a singularly fine *Triomphe de Rennes* appeared in Mr. Walker of Thame's box, and gained the medal, though far inferior to many of the Teas. A *Catherine Mermet* in Mr. Cuthell's prize box of twelve Teas and a *Madame Lambard* elsewhere at one time were considered likely.

But now came the difficulty to find the best Hybrid Perpetual. Several *Gabriel Luizets* claimed our attention. A very fine *La France* was discovered in the "never won a prize before" class, where, I may remark, were several boxes that might have been expected to do battle in the open six, and were quite out of place amongst their feebler brethren. Then an *Annie Wood* in Mr. Baker's box, and especially an A. K. Williams in a grand box of twelve, which were shown in the open class. One of these and a magnificent *Alfred Colomb* were compared for five minutes without any decision. At last we gravitated irresistibly to the very eighteen box of Mr. Cant's, in which we had found *Souvenir d'Elise* (certainly the best eighteen Roses together in the Show), and there was the *Gabriel Luizet* we had admired, getting more beautiful every moment, and fairly taking the honours of the

premiership of 1882. It may be remembered that a bloom of this ran second in 1881.

The comfort with which the members obtained their view, the coolness and space of the arcades, and the excellent centre made by the conservatory with its many other floral exhibition excellencies, will have made this 1882 Show memorable, did nothing else do so, in the annals of the National Rose Society, and it is to be hoped will determine its future abode.—A. C.

SENECIO JAPONICUS, *Schultz, Bip.*

SUMMER and autumn bring a succession of the numerous members of the Composite order into notice, and many of them are

well-known ornamental and useful plants in gardens, but in so large a family it is not surprising that some possessing considerable attractions should be comparatively neglected. The plant represented in the woodcut (fig. 8) appears to be one of these, for when grown as it is at Mr. T. S. Ware's nursery, Tottenham, its effectiveness cannot fail to attract attention and admiration. Visitors to Kew must not, however, form an opinion of the plant's adaptability for garden culture from the specimen in the herbaceous grounds, as it is much inferior to that from which our engraving was taken, and it is evident that a shallow light soil is not the best fitted to ensure the vigorous growth which this *Senecio* makes under more favourable circumstances. At Tottenham it attains the height of 3 or 4 feet, its handsome pal-



Fig. 8.—SENECIO JAPONICUS.

mately divided leaves having a most distinct appearance; the large orange yellow flower-heads frequently exceeding 3 inches in diameter, being produced in a corymbose or raceme-like inflorescence, which rises a foot or more above the foliage. As a border plant in prominent positions it would be very useful, and though it flowers at a time when there are abundant attractions in the garden—namely, during the past and present months, still its bold habit and striking foliage will undoubtedly render it a favourite.

It can scarcely claim to be considered as a novelty, for tracing

it through its various synonyms of *Erythrochæte palmatifida*, *Sieb. et Zucc.*, and of Regel's "*Gartenflora*," tab. 492, to *Ligularia japonica*, *Less.*, we find, according to Decandolle's "*Prodromus*," pars. vi., p. 316, that it is synonymous with *Arnica japonica* of Thunberg and Linnaeus. Under the last generic name Thunberg mentions two species—viz., *A. japonica*, which he describes as having red flowers, and *A. palmata*, similar in most characters to the above, but with small yellow flowers. The *Senecio japonicus*, mentioned by the same author, is quite a different plant. In Martyn's edition of Miller's "*Gardeners' Dictionary*" *Arnica*

japonica is described, but it is not stated when it was introduced to cultivation, if it really was grown then. The same plant was subsequently mentioned by Loudon, who gives the close of the last century as the time of introduction; but the plant appears to have been lost, and again brought into notice within the past twenty years. Specimens have been in cultivation at Kew for some years, and now Mr. T. S. Ware has taken the plant in hand it will soon be obtainable by the general public.

DEATH OF DR. NEWINGTON.

It is with extreme regret that we have to record the death of Dr. Samuel Newington, M.A., Oxon. M.R.C.P. Lond., which occurred at his residence at Ridgeway, Ticehurst, on the 3rd inst. The disease to which he fell a victim was that of the heart, which he has been troubled with more or less for forty years, but not until three weeks from his death was he seriously affected and obliged to keep to his room; up to that date he was out daily wandering about his gardens, in which he took immense interest. Since October last he had given up professional duties, in which he had engaged over forty years, consequently of late had devoted most of his time to horticultural pursuits. Nor did he work in vain. Fertile in conception and prompt in action he devised and constructed amongst other things the ground or curates' vinery, which in various modifications has proved so useful for protective purposes; his last invention, which has proved of substantial value, being the tree-lifting implements figured on page 318, vol. iii., third series of the Journal. He also invented a dibber, which some years ago had a good reputation for planting Wheat, Beans, and other agricultural crops. The structures in his garden are all of his own design, and were home-made. The cylinder vineries are now occupied with Tea Roses. These are among the novelties of Ridgeway, but simplicity, durability, and utility characterise the ordinary structures. His "glass wall" for growing Peaches is figured in our nineteenth volume. It was erected at less cost than a wall could have been, and accommodates two rows of trees.

By his taste and labour the grounds and gardens were rendered highly picturesque. The rockery is a charming example of well-directed labour, and glades, dells, mounds, and fountains contribute to the attractiveness of the grounds, in which he employed some twenty-five men to assist him in his experiments and improvements that were constantly in progress. He was most liberal in disposition, and ever ready to impart information that might be useful. He was a frequent correspondent of the horticultural and agricultural papers under the signatures of "SIGMA" and "OBSERVER." For years past—we can scarcely say how long—he has contributed to our pages much sound matter and many suggestive hints, which have been turned to profitable account by many readers. With all his knowledge he was modest, kind in disposition, and affable, hence he was widely esteemed, as was shown by the numbers that attended his funeral on the 6th inst. He was sixty-eight years of age.

ROYAL HORTICULTURAL SOCIETY.

JULY 11TH.

THE exhibits were confined to the Council-room on Tuesday last, and principally comprised groups from Chiswick and Messrs. Ware and Howard, with new plants from Messrs. J. Veitch & Sons, Chelsea.

FRUIT COMMITTEE.—H. J. Veitch, Esq., in the chair. Mr. C. A. Pearce, gardener to Sir T. Stapleton, Henley-on-Thames, exhibited a Melon called Gray's Court; Mr. Allen, The Gardens, Ramsbury Manor, also exhibited a seedling Melon. Mr. Read, Moat Mount, Mili Hill, sent Read's New Life and Read's Hybrid Green-flesh Melon, all of which were inferior in quality. Mr. Osman, Metropolitan District Schools, Sutton, sent a dish of each Aquedolce and Seville Longpod Beans, which received a letter of thanks. Mr. Bonsall, Campsmount, Doncaster, exhibited a Pea called Bonsall's Curvilinear, and a Cauliflower similar to Erfurt. Messrs. Veitch & Sons exhibited a collection of thirty-nine dishes of Peas, all carefully named and marked with their height and date of coming into use. A cultural commendation was awarded.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, contributed a large and very beautiful collection of hardy flowers very tastefully arranged, neat little brown earthenware bottles being employed to hold them. Amongst the Lilies especially noteworthy were the following:—The deep rich red *L. Thunbergianum cruentum*, for which a first-class certificate was awarded; the bright orange red *L. croceum*, the neat shining yellow *L. Szovitzianum*, the peculiar creamy yellow *L. excelsum*, the small and pretty yellow red-spotted *L. canadense*, the dark purple small-flowered but striking *L. dalmaticum*, the showy yellow and crimson-spotted *L. Humboldtianum Bloomerianum*, with the old white *L. candidum*, and the handsome *L. longiflorum*, and

L. Browni. Of other notable plants represented were *Campanula alpina*, with small deep blue flowers; *Tritonia crocata*, orange red; *Papaver nudicaule*, bright yellow; *Gladiolus Colvilli* The Bride, white; *G. insignis*, salmon scarlet; *Adenophora coronata*, with small Campanula-like pale blue flowers; *Triteleia Murrayana atropurpurea*, with the umbels of deep purplish blue flowers; *Armeria plantaginea rosea*; *Liatris spicata*, and numerous fine Pinks, Carnations, Calochorti, and other flowers. A medal was awarded for this group.

Messrs. H. Cannell & Sons, Swanley, Kent, exhibited a large collection of Verbenas, comprising many handsome varieties. The best were Shakespeare, Fireball, and Lord Leigh, scarlet; Boule de Neige, white; Boy in Blue, deep purple, white centre; Lady Leigh, pale lavender purple; Mr. Gladstone, rose, large; Swanley Strip, scarlet and white; Stars and Stripes, pale rose and white; Blue Superb, purplish blue with white centre, large; and Queen of Verbenas, deep crimson with large white centre. Flowers of the large white *Eriogonon speciosa*, *Malva moschata alba*, *Nicotiana affinis*, and the double white *Campanula persicifolia alba plena* were also shown in good condition, with a pretty selection of single Dahlias and a fine deep purple double Pansy named Lord Waverley, which was certificated. A medal was awarded to Mr. W. Howard, Southgate, for a fine group of Carnations, Balsams, Marguerites, Ferns, Rhodanthes, with Pink and Carnation blooms, some of the latter being extremely fine. Messrs. J. Carter & Co., High Holborn, sent specimens of two fine Lilies, *L. longiflorum Wilsoni* and *L. Thunbergianum atrosanguineum*; the former pure white, and the latter rich red.

A handsome group of well-grown Tuberous Begonias was sent from the Society's gardens at Chiswick, all the plants being extremely vigorous, but compact and well flowered. Several attractive seedlings were staged; three—namely, A. F. Barron, Mrs. Stevens, and Thomas Moore, being honoured with first-class certificates, and are described below. Of others not so noticed the best were the following:—Gippie, with bright rose flowers of excellent form, the petals broad, round, and even. The habit is very compact, and the flowers are produced with great freedom. James McIntosh was remarkable for the rich scarlet colour of the flowers; and several seedlings, only designated by numbers, were noteworthy also for the deep colours. A pretty group of Achimenes and Ferns was also staged, the former being mostly in small pots, but bearing large and richly coloured flowers. A collection of Neriums occupied one corner of the room, several of the varieties certificated recently being represented.

First-class certificates were awarded for the following plants:—

Tydaea Robert le Diable (Veitch).—A most striking variety, with scarlet tube $1\frac{1}{4}$ inch long, limb $1\frac{1}{2}$ inch broad, similar ground colour to the tube, but densely spotted with maroon. Leaves elliptical, $1\frac{1}{2}$ inch long. The flowers are produced singly from the axils of the leaves on the upper part of the stem.

Osmunda japonica corymbifera (Veitch).—A dwarf Fern with bipinnate fronds, the pinnules being deeply and irregularly cut. The fronds are 1 foot or more in length.

Croton aureo-marginatus (Veitch).—A showy form from the South Sea Islands, with leaves 1 foot to 18 inches long and $2\frac{1}{2}$ broad, irregularly mottled with green and yellow, the latter predominating.

Rhododendron balsamiflorum aureum (Veitch).—One of the greenhouse hybrid section, similar in character to that recently certificated, but with bright yellow double flowers, though not so full as the rosy coloured form.

Rhododendron balsamiflorum album (Veitch).—Similar in general character to the above, but with larger pure white double flowers in fine heads of ten or more blooms.

Davallia tenuifolia Veitchiana (Veitch).—Very graceful, the finely divided fronds being 18 inches or more in length, of a plumose slightly drooping form. The reddish stipes also contrast agreeably with the pale green pinnules.

Croton Dayspring (Veitch).—A very distinct form, the lower leaves having three parts of the basal portion rosy red, the apex being deep green, the young leaves being bright yellow margined and tipped with green.

Pleopeltis fossa (Veitch).—A curious Fern, with shining green fronds, lanceolate in outline, 9 inches long, and cut at the margin into deep narrow segments of irregular size and form.

Pansy Lord Waverley (Cannell).—A remarkable variety, with double flowers 2 inches in diameter, of a deep purple nearly black shade. The blooms were of extremely neat form, somewhat suggestive of a double Ranunculus.

Lilium Thunbergianum cruentum (Ware).—One of the richest coloured Lilies in cultivation. The petals are oval in form, very deep red, the lower portion spotted with black, and the centre streaked with a darker shade. Very handsome.

Chrysanthemum La Petite Marie (Ware).—A diminutive Pompon variety, the specimens shown not exceeding 6 inches in height, with neat white flowers tinged with yellow. It will doubtless prove useful for decorative purposes. Second-class certificate.

Godetia Duchess of Albany (Daniels Bros.).—A handsome form, with large white *Eriogonon*-like flowers, which are produced in great numbers near the points of the branches.

Rose Duchess of Connaught (Noble).—An excellent Hybrid Perpetual Rose, with dark scarlet blooms of good substance and very

full. The half-expanded buds were particularly beautiful both in form and colour.

Tuberous Begonia A. F. Barron (Royal Horticultural Society).—A handsome variety, with large bright scarlet flowers $3\frac{1}{2}$ inches in diameter, the petals very round, broad, and bright in colour. The foliage is very dark green, and the habit compact.

SCIENTIFIC COMMITTEE.—Dr. M. T. Masters in the chair.

Hollyhock Disease.—Mr. W. G. Smith exhibited specimens of fruits of the common Mallow with *Puccinia Malvacearum*. They were sent by Mr. Phillips, who gathered them near Shrewsbury. Their fruits confirmed the correctness of Mr. Smith's observation—that the fungus-infected fruits or seeds of the Malvaceæ fall to the ground, and are then capable of producing seedlings diseased with *Uredo* spores without an intervening *Æcidium* condition.

Hart's-tongue Fern Disease.—He also showed a specimen of this Fern attacked by *Didymium effusum*, Lk., new to Great Britain. It occurs on both sides of the frond, and grows over the ruptured masses of spore cases (sori), and even amongst the free spores.

Dwarf Oak.—Dr. Masters exhibited a spray of a dwarf Oak, *Quercus eucine* (humilis), from South Spain. It never attains a height over 2 feet. It was in full fruit.

Oat and Clematis roots attacked with vibrio were also shown by him. It appears to be one variety only of black Oat which is affected, and that to such an extent as to destroy whole crops year after year.

Gardenia and Petroleum.—He exhibited a spray of *Gardenia* treated with petroleum oil and water (a wineglass to a gallon) for killing mealy bug, showing the very healthy character of the plant.

Thuja japonica (Standishii).—Dr. Masters showed specimens in fruit.

Water Lily with Foliaceous Sepal.—He also showed a specimen in which a leaf blade had developed on the apex of a sepal, proving that the sepal, as is usually the case, is a petiole only.

Coloured Pea Pods.—Mr. Laxton sent pods of purple and white Peas, as well as pods of the former crossed by the latter, with purple and green intermixed. From examination it appears that the purple colour overlies the chlorophyll.

Antirrhinum Hendersoni.—Mr. Cannell exhibited flowers of this race, white with a narrow crimson border to the petals. It is an old form but rarely seen, as it will not set seed, this being apparently due to atrophy of the essential organs.

Aërial Tubers of Potato.—The Rev. G. Henslow exhibited tubers found in the axils of leaves.

Canker in Pears.—These were received from Daventry, where it appears very prevalent; the cause was unknown.

Plants Exhibited.—*Sedum Semluovii*, from the Caucasus, by Dr. Masters. *Hoya lasiantha* having hairy petals, from Borneo, by Messrs. Veitch, as well as *Impatiens Sultani*, with crimson flowers, from Zanzibar; as also a curious Aroid, *Lasia stipitata*, from Borneo. These three received botanical certificates. *Hesperaloe yuccæfolia*, from California, which had been flowering ever since June, 1881, was also sent by the same gentleman.

At a meeting of the Fruit and Floral Committees at Chiswick on July the 7th certificates were awarded for the following vegetables and plants:—

FRUIT AND VEGETABLE COMMITTEE.—J. E. Lanc, Esq., in the chair. The collection of Peas was examined, and first-class certificates awarded to the following:—

Lye's Favourite (Lye).—A tall round white Marrow.

Gladiator (Veitch).—A dwarf round blue Marrow.

Turner's Emerald (Carter).—A dwarf white wrinkled Marrow.

Stratagem (Carter).—A dwarf green wrinkled Marrow.

Alfred the Great (Laxton).—A tall blue wrinkled Marrow.

Culverwell's Telegraph, Carter's Telephone, Culverwell's Giant Marrow, and Four-hundredfold (Bunyard), were highly recommended, the two former having been previously certificated.

Lettuces were next inspected—Green Unctuous (Benary), Paris Sugar (Benary), being commended.

Shallots were next examined, when it was found that only two truly distinct varieties existed under the names of No. 1, Small White, Silver Grey, Large Brown, Russian; No. 2, Large Red, Small Red, Large Russian, New Russian, Mammoth; the Exhibition Shallots of Stuart & Mein being a somewhat larger selection of No. 2; the Jersey Giant Red Shallots and the Jersey Silverskin Shallots of Pond proving to be some species of Onion to be subsequently determined.

FLORAL COMMITTEE.—Mr. B. S. Williams in the chair.

First-class certificates were awarded to the following:—

SINGLE ZONAL PELARGONIUMS.

Lumen (Pearson).—Plant of dwarf habit, the trusses very large; the individual flowers large, of fine rounded form, bright scarlet, with distinct white eye.

Eva (Pearson).—Plant of free growth; trusses large, borne well above the foliage; flowers of fine form, beautiful magenta scarlet.

Miss Hamilton (Pearson).—Plant of remarkably dwarf habit, the

trusses large; individual flowers large, of very fine form, beautiful blush white. Distinct and pretty.

Kléber (Lemoine).—Very free habit; trusses of medium size, somewhat loose; the flowers of a beautiful magenta-shaded scarlet, with bright scarlet blotch on lower petals. Very pretty colour.

Atala (Pearson).—Plant of dwarf habit, very free-flowering; the trusses large; the individual pips large, of a fine rounded form, bright orange scarlet.

Olive Carre (Pearson).—Plant of vigorous habit, free-flowering; the trusses very large; individual pips large, of very fine form, clear rosy pink with blotch of white on the under petals. Very fine variety for culture in pots.

DOUBLE ZONAL PELARGONIUMS.

M. Hardy (Lemoine).—Plant of dwarf habit, the trusses of medium size; flowers large, semi-double, delicate rose lilac.

Got (Lemoine).—Plant of very vigorous habit, the trusses very large and full; individual flowers of medium size, semi-double, bright scarlet. Very showy.

Aglaia (Pearson).—Plant of very dwarf habit, very free-flowering; the trusses large, well displayed; individual pips large and double, purplish scarlet.

Candidissimum plenum (Pearson).—Plant of dwarf growth, very free-flowering; trusses of medium size; individual pips of large size, very double, of a pure white colour. The best white variety.

IVY-LEAVED PELARGONIUMS.

Comte Horace de Choiseul (Lemoine).—Plant of free trailing growth, very free-flowering, the trusses of medium size; individual flowers large and double, beautiful rosy pink with streaks of white along the petals. A very pretty variety.

Comtesse Horace de Choiseul (Lemoine).—Plant of trailing habit, free-flowering; the flowers very large, semi-double, beautiful rose centre shading to magenta towards the edge. Very distinct and showy.

DECORATIVE PELARGONIUMS.

Belle de Jour (Lemoine).—Plant of good compact habit, very free-flowering; flowers semi-double, pure white. Will be a good variety for market purposes.

Madame Harmant (Lemoine).—Plant of fine sturdy growth, very free-flowering; the trusses large; individual flowers large, of fine form, pure white slightly streaked with purple towards the eye.

Gloxinia Major Mason (Royal Horticultural Society).—A very fine erect-flowering variety; the flowers very large, with pure white throat, and clear purple margin shading to paler purple towards the edge.

Lantana Phosphoré (Lemoine).—Plant of very dwarf habit, remarkably free-flowering; the flowers clear golden yellow.

TUBEROUS BEGONIAS.

Mrs. Stevens (R. H. S.).—A beautiful free-flowering variety; flowers of fine substance and form, well displayed, beautiful flesh colour suffused with pink.

Thomas Moore (R. H. S.).—Plant of free growth, free-flowering; the flowers of medium size, of very fine rounded form, well displayed pale rosy-scarlet. A very distinct and showy variety.

NERIUMS.

Sœur Agnes (Huber et Cie.).—Flowers single, large, pure white. Free-flowering and pretty.

Mons. Balaguer (Huber et Cie.).—Flowers single, well expanded, beautiful delicate pink shaded towards the edge with rose. A very fine variety.

Madonna grandiflorum (Huber et Cie.).—A very free-flowering variety; flowers with double corolla, creamy white. Very distinct.

Reseda odorata pyramidalis grandiflora (Vilmorin et Cie.).—Plant of fine dwarf stubby growth, very branching; heads of flowers very large, the flowers red. A fine variety for pot culture.

Reseda Golden Queen (Carter).—Dwarf habit; flower spikes large, of a fine golden yellow colour. This also is a fine variety for cultivation in pots.

THE PEAR TREE SLUG—FRUIT IN NEW ZEALAND.

I WAS much interested by your reply to a correspondent in reference to this insect. I do not recollect having ever noticed it in this country, but last January whilst in New Zealand I was quite astonished at the ravages wrought by it at Nelson. The Pear trees there suffered badly, but the Cherries far more so, and I do recollect seeing one Cherry tree that had not had its leaves almost entirely devoured by this insect, which they there call a leech, and which answers exactly the description you give. The quick hedges also suffered quite as much as the Cherry trees from this pest, though Apricots, Apples, Plums, &c., seemed unmolested.

While on the subject of Nelson fruit, it may interest some of your readers to know that I never before saw such crops of Green Gages, Plums, and Apricots. The last-named, as well as Peaches, are grown as orchard standards, and form fine trees. Mulberries also I never before saw so plentiful and of such a size, while the small fruits, more particularly Raspberries and Strawberries, thrive exceedingly well. Figs were good. I also noticed Lemons doing well. With regard to the prices realised, I am afraid the crops were not very remunerative. I saw Green Gages sold by auction in Auckland at $1\frac{1}{4}$ d. and $1\frac{1}{2}$ d. per lb., also Apricots at $2\frac{1}{4}$ d. and $2\frac{1}{2}$ d. per lb. Peaches are finer and grow better in Auckland. However, a better day is possibly commencing for the Nelson growers, as while I was there a jam factory had commenced operations, and was then daily taking some thousands of pounds of fruit.

Honey is everywhere plentiful, and the people are just beginning to give more serious attention to bee-keeping, especially in Canterbury.

You are at perfect liberty to make what use you please of these few remarks, and, if desirable, I may return to the subject on some future occasion.—W. H. MATTHEWS.

[We shall be very glad to hear from you.]

POLYGALA CHAMÆBUXUS.

THIS is a dwarf half-shrubby plant from 6 to 9 inches high, with creeping roots, with ovate or obovate leaves, rather leathery in texture. The flowers are solitary or in pairs, axillary, almost Pea-shaped; the standard and wings white, while the keel petal enclosing the stamens is white at the base, bright yellow at the apex, deepening in colour as the flowers get older. It is a very effective rockery or border plant, growing best in a damp shady place in peat, loam, and sand, in which it grows rapidly, forming dense bushes. It may be increased by divisions, cuttings, or seeds. The cuttings should be taken young after the plant had been gently forced. It is a native of southern Europe, and flowers here from May to June. Both Clusius and Jacquin make some observations respecting a purple-flowered variety, but which I think was unknown under cultivation in this country till within the last few years, when it was introduced and offered by Messrs. Backhouse of York, and which is named *purpurea*. The standard and wings are bright magenta purple and the keel yellow, hence it is a very attractive variety, and, according to the description given of it, it appears to be dwarfer than the typical form, as it is described as being from 4 to 6 inches high, but most likely it will attain the same proportions under cultivation.—T.

BROCKHAM ROSE SHOW.

THE village green of Brockham is perhaps one of the most lovely in Surrey, delightfully situated, encircled by picturesque dwellings, and overshadowed by its Ivy-covered memorial church. Brockham is not only happy in the possession of a perfect village church, but is fortunate in the vicar, who earnestly labours for the welfare of all entrusted to his ministrations and spiritual guidance. He is an ardent lover of Roses, and his zeal in the cause of these flowers is much appreciated by neighbouring friends, who from time to time have placed their grounds at the disposal of the Brockham Rose Society for their annual Show. This year, on July 6th, the Exhibition took place at Redlands, the seat of M. Rhode Hawkins, Esq.—a spot most admirably chosen; the grounds are laid out with great taste, and the surrounding district affords to the admirer of nature scope for many interesting researches. He can indulge any taste he may possess, whether as a poet, a painter, a botanist, or geologist—indeed, there is here every material that can be desired to excite the imagination or to stimulate a lingering fancy. It was near here that the good and great John Evelyn lived and died, and the spirit of the old philosopher and naturalist seems to hover round the scene.

There was a splendid show of Roses. The exhibits were well arranged under a large and convenient marquee, and too much praise cannot be given to Capt. Lang, the Rev. A. Cheales, and other members of the acting Committee for the excellence of all their arrangements to meet the requirements of the exhibitors. The attendance of visitors was smaller than on former occasions, and, unfortunately, the weather was most unpropitious, the rain ceasing but at short intervals during the whole of the afternoon.

The principal class was for twenty-four Roses, single trusses. Four collections were staged, the Rev. A. Cheales securing the first prize with beautiful blooms of great substance and good colour. Most of the varieties in this box were splendidly represented, especially Alfred Colomb, a perfect flower in every respect; Mons. E. Y. Teas, Capitaine Christy, Leopold I., and A. K. Williams were very fine. The second prize was awarded to C. E. Cuthell, Esq., for an excellent collection; Mons. E. Y. Teas, Marie Rady, Baronne de Rothschild, and Général Jacqueminot being almost faultless blooms. In the class for twelve, distinct, single trusses, which is one that generally excites

much interest and competition, G. G. Stone, Esq., was first with excellent blooms of good substance and evenness of form. Thomas Mills, Duke of Edinburgh, La Reine, and Annie Wood were especially fine. F. T. Wollaston, Esq., was second with a box scarcely inferior, and E. Horne, Esq., third with most creditable blooms.

Class 3, for six, distinct, single trusses, Captain Lang was first and Mr. Thompson second. Class 4, for four distinct varieties, three trusses each, G. G. Stone, Esq., again was first with even blooms of good substance, and Mr. F. T. Wollaston second with clean, bright, fresh blooms. An extra prize was given in this class by C. E. Cuthell, Esq., on the recommendation of the Judges, to E. Horne, Esq., for a very well-staged box of good quality. Class 5, for six single trusses, any kind, the competition was very great and interesting, two of the exhibits being so nearly equal in merit the Judges had some difficulty in awarding the gold medal of the National Rose Society; it was, however, deservedly given to C. E. Cuthell, Esq., for his box of remarkably fine blooms of Annie Wood. G. G. Stone, Esq., carried off the first prize for a box of Charles Lefebvre of extraordinary fine quality. Mrs. Mortimer secured the second prize, the Rev. A. Cheales by the rules of the Society not being able to take another prize with his box of Marquise de Castellane.

Class 6, twelve Teas or Noisettes, distinct, single trusses.—In this class there were six competitors. The first prize was given to E. Horne, Esq., for a box of very neat well-formed blooms, the Rev. A. Cheales taking second with blooms of nearly equal merit. C. E. Cuthell, Esq., exhibited in this class and staged a box of most charming blooms, Madame Lambard being remarkably fine in form, substance, and colour. Unfortunately he had placed a Hybrid Tea in his collection, which rendered the box disqualified according to the printed notice in the schedule of prizes. Class 7, six Tea or Noisette, distinct, single trusses.—Miss Barclay took first prize, and Mrs. Thompson second. The silver medal of the National Rose Society for the best bloom of any kind was awarded to Rev. A. Cheales for a magnificent example of Alfred Colomb, and the silver medal for the best Tea was taken by C. E. Cuthell, Esq., for his charming and perfect bloom of Madame Lambard.

Devices, in which ladies only competed.—The competition for the dinner-table decorations was great. Some beautiful arrangements of Roses with Ferns and other foliage were staged. Miss Fuller was deservedly awarded the first prize and Mrs. R. Hawkins the second, although all the four exhibits were good. Device for Drawing-room Table Decorations.—Here also the specimens exhibited displayed great artistic taste, and some really elegant exhibits were placed, so equal in refinement and charm of arrangement as to render it no easy task to determine which should take first prize. Eventually the Judges considered Miss Fuller first, Mrs. R. Hawkins second, and recommended an extra prize to Miss Heath. The somewhat novel decoration called the Brace Bouquet was introduced, and two very chaste and lovely specimens were exhibited. Miss Fuller had the first prize and Mrs. J. B. Nicholls second. Both were most gracefully and delicately arranged. In the class for button-hole bouquets, Rose buds combined with foliage of flowers and exhibited in groups of three, Miss Fuller was first, Mrs. Thompson second, Mrs. J. B. Nicholls third, and Miss Horne fourth.

Messrs. Paul & Sons of the Old Nurseries, Cheshunt, contributed a beautiful collection of Tea Roses, and also a second box of the new Hybrid Perpetual Roses, representing Ferdinande Chaffolte, Guillaume Guillemot, Rosieriste Jacobs, Lady Sheffield, R. N. G. Baker, White Baroness, George Baker, Edward Moreau, Duke of Teck, Charles Darwin, and a seedling of charming colour which promises to be a valuable and popular Rose for the future. Mr. Appleby of the Box-hill Nurseries staged a most attractive box of Teas and Noisettes, which gained much attention and were blooms of high merit. I have thus briefly noticed the chief stands in the Show; the fine character of the blooms and foliage clearly proved the great attention and care that had been given to the culture of the plants, and the skilful management bestowed upon them. In conclusion I cannot omit to mention the kind hospitality of Mr. and Mrs. Hawkins, who so graciously entertained the Committee and friends at luncheon. The Judges were Mr. George Paul, Mr. Appleby, and Mr. G. Baker.—G. B.

PACKING FRUIT.

IN commencing this subject I may warn my readers not to expect anything particularly novel. Originality, according to my experience, though commendable, is not always a proof of superiority, nevertheless I am always prepared to accept fresh ideas. When I hear of what presumably is a superior method or practice, I like to give that method a fair trial, and if its superiority is evident I adopt it, if otherwise we must fall back upon the old plans. As I have before pointed out (page 397) there are many methods of packing flowers for travelling, and it is equally certain there are as many methods of packing fruit.

A young man when learning the profession of gardening—that is to say, if he follows the orthodox rule of staying a limited time in each situation, has good opportunities of forming his opinion upon the merits of several methods. Even then there may be methods he has not seen in practice, and these he may learn from in the horticultural papers of the day. In some

instances the fruit has to be packed, not as the gardener would like, but as a certain set of boxes necessitate, these, perhaps, having been made at the instance of a predecessor; while in many cases the best has to be made of any boxes and packing material forthcoming. The latter happens, I should imagine, more often when packing fruit is only a casual occurrence. Probably the most expensive, and comparatively the least satisfactory, is the employment of tin boxes and trays. These are heavy, liable to rust, and, unless made very strong or with divisions, are more easily damaged than are ordinary deal boxes. Divisions for any kind of fruit, including Peaches, Nectarines, Plums, Apricots, Figs, Cherries, Strawberries, Gooseberries, and Raspberries, I thoroughly dislike, yet where tin is employed, and also often in the case of deal boxes, we find divisions the rule. Here we have a heap of such trays, these being made to fit into deep strong tin travelling boxes. Those for Peaches allow every fruit a space nearly 4 inches square and 4 inches in depth. As these divisions are much too large for any but the very largest varieties, they require a lot of packing material, and this so arranged to admit the fruit being drawn out by it, or they must be bruised. Besides, these heavy boxes with their comparatively few contents are heavily charged for by the railway companies.

I prefer lightly made deal boxes, and if these have tin corner plates, and the lids are lightly screwed down or tied instead of nailing, and thereby spoiling the lids, they will last several years. In a box 12 inches long, 9 inches wide, and 4 inches deep, we can, as a rule, properly pack twelve fruits. For Nectarines—these also answering for Apricots, Plums, and the smaller Figs—we have boxes of the same length and width, and 3 inches deep. At one time we lined the bottoms with cotton wool, then pulled some of the material into lengths about 12 inches by 6 inches, giving these a single fold lengthways, with the "skin" outward. Each fruit was placed in a half-grown Vine leaf, the base of the fruit near the base of the leaf; the cotton wool was wound tightly round the fruit, which was packed in the corner, others being closely added. In this manner the boxes were filled, one fruit assisting to fix others. More leaves were laid over the fruit, then a folded strip of cotton wool of the same size as the box, and on this the lid was tightly screwed. Thus packed the fruit may be roughly shaken and receive no harm. The Vine leaves being soft do not bruise, but serve to keep the fruit fresh, and besides contribute to the pleasing appearance of the fruit when uncovered—an advantage where the employer or recipient request to see it before it is unpacked, or, again, when sent to a market salesman. Vines on the open walls supply our principal wants in that respect.

Where, however, suitable moss is available this will be found the most economical. We collect it from walls and old tree stumps, and after slightly drying it beat out the dust and sift it to still further cleanse it. When packing, the boxes are lightly filled with the moss; the Peaches, Nectarines, Apricots, or Plums, as the case may be, are placed in a leaf, then wrapped in a piece of tissue paper and firmly bedded in and surrounded by the moss. The boxes hold the same quantity as in the preceding method, and the fruit is firmly but not roughly covered with moss, on which the lids fit tightly. Our Strawberry boxes are 12 inches long, 9 inches wide, and 2 inches deep, outside measurement, this including the lid as in other instances, and a single layer only is packed in each. Either a layer of moss or cotton wool is employed for the bottom, placing on the former a piece of tissue paper; and the Strawberries, each placed in a portion of a Strawberry leaf previously flagged and therefore softened, are packed flatly and closely together. On these tissue paper, more of the packing material, is placed in quantity sufficient to cause the lid to fit closely. The same boxes are available for Cherries, Gooseberries, and Raspberries; these, if very ripe or choice, going in single layers, but, if they will travel well, in double layers. Raspberries are usually packed separately in small softened leaves, but the Cherries and Gooseberries seldom require this. Figs are wrapped in tissue paper, then in cotton wool, and laid closely in a single layer in shallow boxes. These are bad travellers, and should be pulled before becoming dead ripe. It is also very important in each of the preceding cases that the fruit be picked before becoming full ripe, and they must also be sound if expected to travel well; this rule to be particularly observed when sending fruit to the markets.

It is a curious fact we invariably have the moss returned to us, but what becomes of much of the cotton wool gardeners are constantly sending to their employers' houses? I never yet saw it properly returned, and frequent outlay is consequently necessary. Unfortunately moss is not always available, neither is the best quality of paper shavings. The latter are particularly good for packing Melons, Pine Apples, and even Grapes. These shavings may sometimes be had of the printers, but as a rule they are sent

away to be worked up afresh. This, again, does not return as it should do, and I am now using moss for the Melons, these being first wrapped in paper and then firmly bedded in it with the stalks upwards, in order they may be preserved, a Melon in my estimation being incomplete without a footstalk. Pine Apples are not grown here. They are usually wrapped in paper, taking especial care of the crown, as this if bruised resembles imported fruit, while the fruit is well surrounded with cotton wool. In both instances they should be prevented from rolling about, as they will easily be damaged and also injure other occupants of the box.

It will be seen the practice I recommend with the Peaches and other small fruits is much the same as that for some time adopted by Mr. Coleman of Eastnor Castle, and which contributed to his success in the recent competition for special prizes offered for the best methods of packing fruit for long distances. It is only fair to state it was owing to his writings on the subject of fruit-packing that induced me to give moss a trial as a substitute for cotton wool. With regard to Grapes, unless they were for the market, I should not pack as he does, simply because the quantities to be sent are smaller. A basket or box for market Grapes in general use measures 18 inches in length, 12 inches wide, and 9 or 10 inches deep. The bottoms of these are covered and the sides lined with cotton wool, paper shavings, or—as practised by Mr. Coleman, and, if I remember rightly, a previous winner, Mr. Crump, late of Blenheim—with moss and tissue paper. The baskets are disposed in a sloping direction, and the bunches packed point downwards as closely as they can be worked in together. Nothing is placed between them, but a sheet of paper is placed over the whole, and the lid closing tightly on the stems effectually prevents oscillation and consequent injury from excessive friction. What I believe to be the next good method is to wrap each bunch in rather stout and very smooth white paper, and this is especially recommended when a few bunches only are packed in a box not made especially for Grapes. For a moderate-sized bunch I form a bag out of a piece of paper 18 inches by 12 inches by placing this lengthways on the bench, then taking hold of the middle of front edge with the thumb and forefinger, and the nearest right-hand corner with the left hand, bringing this over to the inside of the farthest left-hand corner, and finish off by twisting the point formed by the paper in the right hand. In shape it is similar to the old-fashioned sugar bags, and in this is disposed the bunch. They are packed in a sloping position on and surrounded by either moss, cotton wool, or paper shavings, and when unpacked do not appear so much rubbed as might be anticipated. By having all the boxes made of the same length and width they are easily tied together and dispatched, or, better still, may be packed evenly in the vegetable or other hampers being forwarded.—W. IGGULDEN.

THE PRODUCTION AND LOSS OF NITRATES IN THE SOIL.

MR. WARINGTON'S LECTURE.

(Continued from page 475, last volume.)

SPEAKING of the influence of a crop on nitrification, it was twofold. First of all, they could not grow any crop on the land without diminishing the amount of drainage. The amount of evaporation from a field under crop is very much greater than from a field under fallow, and therefore the soil necessarily suffered less from drainage. The other effect was that the crop was eager to obtain nitrates, and therefore the nitrates were taken up by the roots and turned into insoluble organic matter. He would lay before them results of some determinations of the amount of nitrates present in cropped and fallow land. In 1878 they had at Rothamsted a field half in fallow and half in Beans. After the removal of the crop of Beans samples were taken from that land and also from the land under bare fallow. The first 18 inches of the soil that had been bare fallow contained 36 lbs. of nitrogen per acre, and that from which the Beans had been taken only contained 10.5 lbs. per acre. At the same time a similar experiment was tried with land under fallow and land under Wheat. The land under fallow yielded 33.7 lbs. of nitrogen per acre, and that on which Wheat had been grown only 2.6 lbs. per acre. That was a striking instance of the extremely perfect manner in which the removal of the nitrates from the soil was carried out by the Wheat crop. The drainage water from several plots of the experimental Wheat field contained in the summer time no nitric acid at all, as it was taken up so completely by the Wheat crop.

They had now arrived at three cardinal points as regarded nitrates—1, they were being continually produced; 2, they were very easily lost; and 3, that that loss can be prevented by a crop. This subject became one of very great agricultural importance when they saw the considerable money value of nitrates. Taking the present price of nitrates in the market, the loss by drainage of 44 lbs. of nitrates per acre represented a loss of 37s. per acre per annum. That was a

great loss, and it followed that economical farming depended very much indeed on the economising of the nitrates. Now, taking the various systems of cultivation, bare fallow involved the greatest risk of loss of nitrates, corn crops involved the next greatest, roots came next as causing a less loss, and lastly, pasture involved the least possible loss of nitrates. Why was this? They had seen that in bare fallow the loss was caused by the facility which the absence of crop gave for having the nitrates washed away. As to corn crops, their growing period was practically limited to three months—April, May, and June, but the process of nitrification in the soil would go on in July, August, and September with vigour, and the nitrates then produced were freely lost in winter when there was abundant drainage, and no crop to feed upon them. If Wheat was grown after Wheat there might be a considerable loss of nitrogen from the soil, from the fact that loss by drainage went on during a great part of the season when the production of nitrates was most active, and when there was no growing crop to retain them. When they came to the root crop they had growth going on in June, July, August, September, October, and up to November, during the very period of the year when they most wanted to save the nitrates.

Mr. (now Sir J. B.) Lawes deserved the credit of first pointing out that the roots in a rotation were a conservative crop—they saved the nitrates in the soil; when they were fed off on the land the roots returned to the soil the nitrogen they had saved. In pasture they had the best possible conditions for saving the nitrates, for there they had vegetation on the land all the year round—they had the largest amount of evaporation and the smallest amount of drainage. Was it, then, possible to do anything to diminish the loss of nitrates? He believed that a part of the present agricultural depression was owing to the extremely wet winters of the past few years, which had resulted in lowering the condition of the soil by washing out extraordinary amounts of nitrates. Could anything be done to alter this? He was not a practical farmer, and he wished them to take anything he said on that part of the matter as subject to a much better opinion than his own. But he would point out a few things that might possibly be a help. For instance, in the case of a bare fallow, the good work on the fallow was done in the summer time; that was when they got the advantage of the fallow, and the evil came in the winter. A gentleman had told him that he had found it a good plan to get the fallows clean in July, to then sow Mustard or Rape, and then before sowing the Wheat in the autumn, to plough the Mustard or Rape (which had grown vigorously) into the land, and then to sow the Wheat. Now that gentleman knew nothing at all about nitrates, but he had done just what he ought to have done if he desired to save them. The Mustard or Rape took up the nitrates, and turned them into insoluble organic matter, and when it was ploughed into the land it slowly resumed the forms of nitrates for the nourishment of the Wheat plant. But for that simple plan a great part of the nitrates produced in summer might have been lost by the drainage of the winter months. Again, he thought there was no doubt—though he was aware that there was a great practical difficulty about this point—that it was not advisable to plough light land in the autumn. By ploughing land in the autumn they did their best to give vigour to the production of nitrates. They were also destroying the weeds, and in the winter the weeds were the farmer's friends, for they prevented drainage to some extent; they also helped by taking up the nitrates, and thus if the farmer left the destruction of the weeds till spring, they were more or less equivalent to a green manuring. He would therefore recommend that no more ploughing be done in the autumn on light land than was absolutely necessary.

Having pointed out the value of long-rooted crops, such as Rape, Mangold, Clover, and Sainfoin, which helped to bring up again nitrates that had washed down to a considerable depth, and thus make them available for plant food, he passed on to say a few words on nitrification in relation to manures. Experiments had shown, from observations made on the drainage water from a field in which ammonium salts had been applied to the Wheat crop, that the ammonium salts in a very short time became nitrified, and in one case a distinct increase of nitric acid was traced in the drainage water within forty hours of their application. In fact, as far as could be judged, the whole of the ammonia applied might be completely nitrified in a month. Another set of experiments showed that the application of nitrate of soda resulted in a still more striking increase in the nitric acid draining from the land. Seeing that the nitrates found their way so quickly into the drainage water and were lost, it was of the highest importance to the farmer that he should not apply the costly manures which produce the nitrates before the crop was able to make use of them, and if they could only make sure of the seasons they would be able to arrange their dressings accordingly. If they could anticipate a dry season they would like to apply the manures in the autumn, while if the winter was wet of course a spring application of the manures would be preferable. In conclusion, the lecturer said a few words on the loss of nitrates occasioned by diffusion—viz., the passing of salts through wet soil without actual drainage taking place. [Applause.]

The Principal, in thanking Mr. Warrington on behalf of Professor Kinch, the staff, and the students, observed that the lecture had conferred a benefit not only on the College but on the agriculturists of the neighbourhood. He also impressed on Mr. Warrington that if he would go a little further than he had now gone, and give them a text book upon subjects such as that upon which he had lectured, he

would be doing them a very great benefit. [Applause.]—(*Gloucestershire Standard*.)

STOTT'S MONARCH RHUBARB.

THIS variety is not much known, but it is an excellent one, and in some respects distinct from and superior to any other. Eighteen months ago I had half a dozen small roots of it from Messrs. Dicksons & Co., Edinburgh, and these have now gained large proportions. Lately we have had stalks of it 10 inches in circumference and about 24 inches in length. The colour is a bright green, and the flavour good. Some of the leaves are 4½ feet across, and it has been suggested to me more than once that it would make a most effective foliage plant in pleasure grounds, and this it doubtlessly would, as there are few plants which produce such handsome leaves.—J. MUIR, *Margam*.



KITCHEN GARDEN.

MAKE a first sowing of White Naples and Tripoli Onions. If large bulbs are required the ground should be well manured, employing thoroughly decomposed manure; and a dressing of soot is useful in preventing the maggot. The first sowing of early kinds of Cabbage may now be made. Among other good varieties are Ellam's Early Dwarf, Denning's Early, and Hill's Incomparable; those preferring smaller kinds will find Atkins' Matchless and Little Pixie excellent. In warm localities the sowing should be deferred for a fortnight, as when sown too early there is danger of the plants running in spring instead of hearting.

The main crop of Endive should be sown without delay. Round-leaved Batavian and Picpus Green Curled are good sorts. Make a good sowing of Turnips; but small sowings of Spinach and Radishes at short intervals will for the present suffice. Lettuce in quantity to afford a late supply should now be sown, and from this sowing a sufficient number of plants should be transplanted in a position where protection can be given in severe weather, or they may be lifted and placed in pits or frames. Make a sowing of Chervil in a sheltered position for affording a supply the best part of the winter.

Parsley which has been transplanted withstands the frost better than if allowed to remain in the drills where sown; and where this is in great demand during winter a sufficient quantity of plants should be at once transplanted in pits, which can have lights placed over them and be otherwise protected in severe weather.

Rosette Coleworts will by this time be fit for pricking out from the seed bed preparatory to the final planting, and when the requisite number are withdrawn thin the remainder to 2 or 3 inches apart, and they will soon be ready for planting 12 inches apart as ground becomes vacant.

The present is a most suitable time for planting the main crops of Broccoli. Where kitchen gardens have been long established and high cultivation practised the soil becomes very rich, in which case it is best to plant Broccoli without digging the ground; this induces sturdy growth, rendering the plants more suitable for withstanding severe weather.

As ground becomes cleared of early Peas and Potatoes the space should be re-occupied without delay with Savoys, Borecole, and other description of winter greens. Plant out a good breadth of Cauliflowers from the late May sowing for autumn use and for lifting under some protection. Attend well to the requirements of Celery in watering, and plant out late crops in well-prepared trenches, also Leeks where these are required blanched. When fit take up and bunch Garlic, also Shallots. Tomatoes on walls or trained to stakes should be well attended to in stopping all lateral growths, and when a sufficiency of shoots is set stop the leading shoots so as to direct all the energies of the plant to the maturation of the fruit. Peg out the growth of ridge Cucumbers, keeping them moderately thin and stopped

as required, similar remarks applying to Vegetable Marrows, well attending to them with water in dry weather.

FRUIT HOUSES.

Vines.—Midseason or intermediate crops of Grapes now about colouring should have a temperature of 70° by artificial means night and day, and a little air given constantly and freely whenever the weather permits. If the borders are in the least dry give a thorough soaking with tepid water or weak liquid manure, and mulch with some short partially decayed manure; this watering will be sufficient to enable the Vines to ripen their crops. Moderate air-moisture is quite as essential to the Vines when finishing their crops as when the fruit is swelling; but, as before observed, the houses must be freely ventilated. Some kinds, such as the Duke of Buccleuch and Madresfield Court, are apt to crack when kept too moist at the roots, hence the preceding remarks must be modified in their case.

Late Grapes should have every encouragement in the shape of plentiful supplies of water or liquid manure to the borders in a tepid state, keeping a genial condition of the atmosphere by damping available surfaces as they become dry, more especially at closing time, which should be done early with a good sun heat at a temperature of 85°, admitting a little air in half an hour or so afterwards. Commence ventilating on fine mornings when the temperature reaches 75°; increase it gradually as the sun increases in power, and at 85° ventilate fully. Reduce the ventilation so as to keep it from falling below 80°, having the temperature through the day as near as may be at 80° to 85°, employing artificial heat to maintain a night temperature of 70° and 75° by day. Scalding should be guarded against by a warm condition of the atmosphere and abundant ventilation, especially in the early part of the day.

Late houses of Muscats require similar treatment to the thick-skinned black late Grapes; those ripening should have a little extra fire heat and a temperature from 85° to 90° as a maximum by day, with plenty of air. Late Hamburgs need not be pushed forward so rapidly as the kinds that are to keep over the winter, but they should nevertheless be assisted in dull cold weather with a little fire heat to maintain a night temperature of 60° to 65°, and 70° to 75° in the daytime; ventilate a little at 70° on fine mornings, and keep through the day at 80° to 85° from sun heat with free ventilation.

Laterals should be kept well in hand by frequently pinching them, only allowing extension where the Vines are weak or carrying heavy crops, and in no case tolerate them if they are likely to crowd or in any way interfere with the full exposure of the principal foliage to light and air.

Young Vines of this season's planting should be allowed to grow freely, they having to be cut down at the winter pruning to three or four eyes; but any supernumeraries intended for fruiting next season should have the laterals pinched at the first leaf, and subsequent growths as made to a length of 7 or 8 feet, above which the laterals may remain, as they will encourage root-action.

Vines in pots for early fruiting next season have completed their growth, and should have free exposure to light and air; they must not be allowed to become infested with red spider, but be syringed occasionally, and though they must not suffer by want of water, an overdose would be highly injurious.

Grapes thoroughly ripe should be shaded during prevalence of very bright sunshine to preserve their colour, bloom, and quality unimpaired.

Melons.—About this time, should the weather be warm and moist, the blossoms set very indifferently, especially in pits or frames where there is not the same means of expelling moisture as there is in houses heated with hot-water pipes. In cases of this description only apply sufficient water at the roots to prevent flagging, and avoid wetting the surface of the bed and foliage of the plants more than can be helped. Apply a good lining to the bed, and admit air constantly to allow the moisture to escape and so prevent its deposition, as would be the case on the foliage and flowers were the lights closed. Keep the growths thin, fertilising the flowers as they expand, and at the same time stopping the shoots one joint beyond the fruit. Similar precaution will need to be taken in dung-heated pits and frames

where the fruit is ripening, as in a close moist atmosphere it is liable to crack and be deteriorated in flavour. Admit a little air constantly, raising the fruit on inverted flower pots. Maintain a good bottom heat of 85° to 90° for young growing crops, and a moist atmosphere, syringing freely, except when the fruits are setting or ripening, stopping the laterals, and prevent crowding by cutting out superfluous growth. It is now important that the late plants should be planted without delay, therefore clear out as soon as possible those which are exhausted, and prepare for a fresh start at the earliest opportunity.

Cucumbers.—Fire heat will only be necessary in very dull cold weather to maintain a temperature artificially of 70° to 75°; but in the case of making new beds gentle bottom heat either by means of hot-water pipes, dung, or tan should be secured. If either of the latter is employed do not plant out until the heat, if it exceed 90°, is on the decline. Earth up from time to time those plants which have been in bearing some months, maintaining a firm condition about the roots. Apply liquid manure copiously once or twice a week, and maintain plenty of atmospheric moisture in hot weather. Syringe freely, and close the ventilators about 4 P.M. on fine days. Shade no more than necessary to prevent flagging. Fumigate if aphides appear, dusting with flowers of sulphur against mildew. Use the knife freely, cutting out exhausted growths and bad foliage frequently, stopping one or two joints beyond the fruit, avoiding overcrowding and overcropping as the greatest of evils. Now is a good time to sow a few seeds for autumn fruiting; and as it will take from three to four weeks to secure sturdy plants, make the necessary preparations in preparing the dung, if such be used for bottom heat, and soil, thoroughly cleansing the house in the meantime. Continue to train and earth up plants in pits and frames, and when warm rains prevail remove the lights for a few hours in the afternoon. Keep the growths well thinned out and stopped, damping the foliage at about 4 P.M., closing at the same time.

PLANT HOUSES.

Stove.—Assiduous attention must be given to cleansing plants from mealy bug and scale by the application of an insecticide with brush or sponge, taking care not to injure the young growths and flower buds. Red spider often seriously disfigures *Dracænas*. The best remedy is to sponge the leaves, especially on the under side, immediately the insects are detected, as if allowed to increase the plants will in a few days be spoiled in appearance. Thrips can be kept under by fumigation, but to be effectual it must be repeated on two or three consecutive evenings. Syringing should be practised on such plants as are liable to be attacked with insects, directing the water forcibly against the under side of the leaves, and a moist atmosphere should be secured by damping available surfaces frequently. Fire heat may be dispensed with provided the solar heat is sufficient to maintain by judicious closing a minimum temperature of 70° to 75°. Allamandas, *Dipladenias*, *Bougainvilleas*, and other free-growing plants soon exhaust the soil and fall off in their flowering towards autumn when most wanted, but when well managed they flower continuously all through the summer and autumn: in order to render them timely assistance surface-dress the soil with good manure, and apply liquid manure liberally.

Cuttings of most hardwooded plants are now in a half-ripened state and will root freely, and where there is not the convenience of affording a brisk heat early in the season it will be well to strike all that will be required now, and keep them slowly growing through the winter. It is best to insert the cuttings singly in small pots, as then there is no check consequent on potting off where several cuttings are inserted in a pot. Amongst flowering plants amenable for propagation now may be mentioned *Gardenias*, *Tabernæmontanas*, *Ixoras*, *Medinillas*, *Stephanotis*, *Dipladenias*, *Clerodendron* both the climbing and shrubby species, *Combretums*, *Thunbergias*, *Rondeletias*, *Bougainvilleas*, *Æschynanthuses*, and others of similar character.

Ferns.—Plants that did not require more root space at the time of the general potting in spring will now require it, and if not repotted they will get into a stunted state before spring. In potting use material of such a character that water can percolate freely by em-

ploying a liberal admixture of charcoal or cinders in the soil and thorough drainage. Plants with creeping rhizomes, such as *Gleichenias*, should never be allowed to suffer from having the points of their creeping stems injured by want of room, as would be the case if they are allowed to extend over the rim of the pots. *Gleichenias* must never be allowed to suffer by want of water, for if the young fronds flag they never attain their proper development. Tree Ferns suffer similarly if insufficiently supplied with water, particularly *Alsophilas* and *Cyatheas*, any check to the development of the fronds causing their serious disfigurement. Thrips will now be making their appearance, and must be kept under by moderate fumigation on two or three consecutive evenings. Seale must be kept under, for if allowed to get ahead it is almost impossible to get the plants clean. Pot any seedlings of *Adiantums*, *Pterises*, in small pots, as they are useful in many ways for decorative purposes.

Roses in pots for winter flowering should be encouraged to make all the growth possible. They may be plunged in the full sun in ashes, not too close, and the surface of the soil mulched with decayed manure, affording liquid manure twice a week. Do not allow them to suffer from the ravages of aphides or red spider, and if such appear promptly take measures for their destruction, as Roses for forcing to insure their flowering well require every attention. Plants of *Echeveria fulgens* and *E. retusa* intended for winter flowering should be potted and be treated liberally for the next few weeks, as the stronger the plants the finer they will bloom. Attend well to *Salvias* for winter blooming, never allowing them to want water, or they will lose their lower leaves, and stop the shoots to keep them in shape. Encourage *Chrysanthemums* with liquid manure as soon as the roots have fairly taken to the soil.

THE BEE-KEEPER.

UNSETTLED POINTS.

THAT adult bees live on honey and do not eat pollen at all I stedfastly believed for more than forty years. Two or three years ago Mr. Raitt stated in a private letter to me that a highland lady fed her bees on barley bannocks, that he had found the husks of pollen grains in the excrements of his bees, and that such excrements changed their colour if the bees were fed on peameal. This statement was quoted into the pages of this Journal. This evidence appeared satisfactory and conclusive, and I said so at the time, though I was convinced that bees can live and be healthy for months on honey or syrup alone—or, in other words, without pollen or meal of any kind. Other writers have said that pollen contains the nitrogenous element necessary to maintain the muscular strength of bees. Much has been written and spoken on this point without giving facts to support it. Not so with Mr. Raitt, who gave substantial evidence for his statements. Many hundred stocks of bees have died of hunger with plenty of pollen around them, while they have been sitting on cells of pollen; but whoever heard of bees dying of hunger with honey beside them?

I will now quote a short letter on this subject from an American periodical: "The bees that I put into the cellar on the 21st day of November last had sugar syrup but no pollen, and, removed on the 19th of April, had but one opportunity of flying about. They had an airing on the 2nd of March. Now for the result of the experiment. They were all in splendid condition, except two hives that were overlooked and starved, and two that were queenless but strong in bees; this, however, I consider no fault in the manner of wintering, but my own fault in keeping such queens. I never before had bees winter without some of the colonies showing signs of dysentery. There was not a cell nor hardly an egg in the seventeen colonies left in the cellar. Their combs and bees were as clean and bright as they were last November. Now, if they wintered last winter for one hundred days and came out in good condition, why may they not winter another year?"

The editor appends to this letter a short note as follows: "Your experiment is a valuable one. If you had seventeen colonies that wintered without a particle of brood until new pollen came in, it is almost impossible to believe that the result was accidental, and that your depriving of pollen had nothing to do with it. We have for some years been under the impression that bees would

winter as well without pollen as with it. We should not be at all surprised if your treatment would do away with the possibility of dysentery." Bees use pollen in rearing their young, but this does not prove that adult bees eat it. This question, interesting to bee-keepers, is now open for examination and further experiment.—A. PETTIGREW.

BEEES, HIVES, HONEY, &c., AT THE ROYAL AGRICULTURAL SHOW.

THE British Bee-Keepers' Association, under the auspices of the Royal Agricultural Society, have arranged an excellent display of bees, hives, and appliances used in the more advanced methods of bee-keeping. These annual apiarian exhibitions have formed part of the Royal Agricultural Society's programme since the Kilburn Show held in 1879, and have increased in popularity in each succeeding year. The present Exhibition of bee-keeping appliances at Reading far surpasses any of its predecessors. The present unsettled state of the weather has, however, greatly militated against the production of honey, and in consequence many of the entries in the honey classes did not appear at the Show.

Observatory hives stocked with bees and their queen are a great feature in the Show. The first, second, and third prizes in this class were all awarded to Mr. T. B. Blow of Welwyn, Herts. Mr. Blow also gained first prizes for the best collection of appliances adapted for modern bee-keeping and for comb foundation, the latter being prepared by a machine in the presence of the Judges. Messrs. Neighbour & Son of Regent Street, and Messrs. Abbott Brothers of Southall, have also an excellent display of goods in the several classes, the former taking second and the latter third prizes in the class for the best exhibition of hives and other appliances.

The classes for hives are well filled. Mr. Blake of Wickham Market, Suffolk, secures first prize in the class for the best frame hive, price not exceeding 15s.; Mr. T. B. Blow second, and the Rev. W. C. Burkitt third. In the class for cheap hives Mr. Blow takes first prize, Mr. Blake second, and Messrs. Abbott Brothers third.

The weather on the first day of the Show was most unfavourable for the manipulations and lectures in the bee tent. Weather permitting, displays of driving, transferring, &c., will take place every day during the continuance of the Show, which closes on Friday next. The Rev. E. Bartrum, Rev. S. R. Wilkinson, Mr. T. W. Cowan, Mr. G. H. Harris, and Mr. J. M. Hooker acted as Judges in this department.

LANCASHIRE AND CHESHIRE BEE-KEEPERS' ASSOCIATION.

THIS Association is now in course of formation, and I am hopeful that it will in time be one of the largest and best supported branches of the parent Association in London. I respectfully urge bee-keepers of every school in Lancashire and Cheshire to consider the desirability of joining this branch, and thus help to make it a success. Cheshire is an excellent district for bees, and bee-keepers are numerous. In the district of Bowdon alone there are some able bee-keepers, some of them having from eight to twelve stocks annually: altogether above a hundred stocks are kept. Some parts of Lancashire are not so good for honey, and some are equal to Cheshire. Lancashire is characterised by many large manufacturing towns, successful merchants, and plenty of means to support such associations. Mr. J. P. Jackson, 31, Jermyn Street, Prince's Road, Liverpool, is the Hon. Secretary, and he is anxious to assist the cottage bee-keepers in the two counties. I know Mr. Jackson very well, and believe that no effort on his part will be wanting to carry the movement on to a successful issue. The fee of membership is only 1s. per annum. The Association this year will have a bee and honey Show at Preston in the second week of September, offering £40 in prizes besides medals. Various processes of manipulation will be shown in the bee tent.—A. PETTIGREW.

TO CORRESPONDENTS.

** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Measuring Gooseberries (L. T. T.).—A half sieve contains three and a half imperial gallons, or fourteen quarts, so you will perceive the Covent Garden prices and your own are as nearly as possible identical.

Brachycome iberidifolia (H. M.).—This is the plant to which you allude. It is figured on page 413 of our issue of November 3rd, 1881, and you can have the number if you desire it in return for 3½d. in stamps sent to the publisher. The plant is an annual, and seeds sown now would produce flowering plants late in the autumn. It is pretty grown in pots for greenhouse decoration, also for borders in the open air.

Early Gladioluses (A. M.).—The white Gladiolus which you have seen in the flower markets is *G. Colvilli albus*; The Bride is reputed to be a superior form of this, and is valuable for affording flowers for cutting. The scarlet and pink kinds are varieties of *G. ramosus*, of which there are several. Queen Victoria, Prince Albert, and formosissimus have scarlet flowers flaked with white; Lord Auckland and Ne plus Ultra have rose and white flowers, and Lavinia and insignis rosy purple and white. These are a few amongst others that are good. The very early dark purple kind sold cheaply in large bunches is *E. hyzanthinus*.

Roses for House (Idem).—All the varieties you name will with good cultivation grow and flower freely under glass, but all of them will not cover a roof alike quickly. You do not, however, say you desire them all for that purpose. As dark Roses suitable for the roof, you will find Reine Marie Henriette and Cheshunt Hybrid excellent. Madame Lambard is a valuable variety either for the Rose house or open air.

Single Pyrethrums (Major).—Your small plants that produced one flower each, and "look as if they were going to die," will in all probability produce growths from the base, and form good plants next year. Remove the flowers, but do not cut the stems off close to the ground—that is to say, leave those portions having fresh healthy leaves. If the weather is dry water the plants freely, and if the ground is poor give liquid manure. In the course of a week or two fresh growths will appear close to the ground, and by the autumn will form fine healthy plants.

Second Growths on Pear Trees (J. Dawson).—Trees that are growing freely and have the shoots pinched or shortened early, say in June, always produce second growths, especially where there is no fruit to support. These growths should be promptly removed, as if left unchecked the trees will be more crowded than if they had not been pruned at all. Our practice is to remove these subsidiary growths as soon as they are 2 or 3 inches long, leaving one leaf at the base of each. When thus young and crisp they snap off easily, and a good-sized tree can be completed in a few minutes. Still further growths may issue, and they also must be removed.

Preparing Quassia Water (A Man of Kent).—Although it is usual to pour boiling water on quassia chips for producing a decoction for destroying insects it is not essential; the insecticide is more quickly made by that process—that is all. If you place quassia chips in a vessel and pour cold water on them, allowing them to remain for forty-eight hours or more, you will find the effect of the water as potent in destroying insects as if boiling water had been used. An ounce of chips to a gallon of water is the quantity to use, and no further dilution will be needed.

Suckers from Manetti Stocks (Eunice).—We can quite understand your disappointment, but as Roses thrive so well on this stock in your garden we certainly should not reject it entirely. The Manetti cuttings were roughly made, the eyes not having been removed from them before insertion, hence the annoyance to which you are subjected. We have grown hundreds of Roses on the Manetti, and seen thousands grown by others, and a sucker from the stock is a rare occurrence. In most nurseries where Roses are largely grown care is taken that the plants do not produce growths from the stock. You have been unfortunate.

Market Gardens (C. B.).—They are not public gardens, and it is not by any means easy to obtain access to all of them either with or without an introduction. Your only course is to write to such of the proprietors as you choose. Mr. Warreu, we feel sure, will permit you to inspect his grounds, and will probably be able to give you information that will be useful to you in your future movements.

Pansy (A. H.).—If you will state the name of the variety, if you are able to do so, or refer us to the description to which you allude, we shall be better able to reply to your letter. You simply say the flowers have "not answered to the description given," but do not indicate where that particular description is to be found, nor by whom it was given. If you will supply us with this information, or describe the variety more fully, we will do our best to aid you in procuring what you want.

Spruce Firs Unhealthy (G. S.).—It is not at all unusual for Spruces to lose their vigour in soil of your description after growing for twenty years. The growth is very weak, indicating exhaustion, and we know of no means for restoring the health of the trees, growing, as they are, in a shrubbery. In all probability they will get worse as they get older, as Spruce trees frequently do in such soil as you describe.

Pinching Dwarf Fruit Trees (An Amateur).—You ask if the trees "ought to have produced second growths" after the first growths had been pinched. Yes: unless trees are heavily cropped with fruit and do not produce second growths after the first were pinched in June we conclude they are not in a very healthy or satisfactory condition. See our reply to another correspondent, whose letter we had answered on the same subject before yours was received.

Spiræa palmata (P. C.).—Our remarks last week applied to this plant, and the name of *S. japonica* was the result of a clerical error. *S. palmata* is a hardy herbaceous plant—quite as hardy, so far as we know, as *S. japonica*. Deutzias are hardy shrubs, and not eligible for competition in classes for stove and greenhouse plants except under specified conditions. The same remarks apply to the Ghent and Mollis varieties of hardy or American Azaleas; but Azaleas of the indica type are greenhouse plants. The common Myrtle is also a greenhouse plant, and will not endure the severity of our winters in open positions without protection; but no protection whatever is needed by either *Spiræa palmata* or *S. japonica*, therefore they cannot strictly be regarded as greenhouse plants,

although they are often grown under glass, and are largely employed for the embellishment of conservatories.

Melons not Setting (R. C.).—You say nothing about the health or condition of the plants. Possibly they are too crowded, or the soil is too light and rich; if so, thin-out the growths, make the soil firm, and give less water. We should not shorten the leading growths so closely as you indicate, as if you stop them about a foot from the sides of the frame they will, we think, produce fruit-bearing laterals; and if the flowers are fertilised as they expand, and the temperature and ventilation are rightly managed, the fruit will swell and afford a succession to the plants that are now bearing. You will find further information relative to setting Melons in our "Work for the Week."

Growing Celery (F. Shaw).—The manure you have used is good, but that from the pigstye or cow byre is preferable to that from the horse stable for light sandy soil. Until the plants are earthed up—and we should not apply the earth too soon, but instead, tied them up loosely when they are large enough—you will find it of advantage to mulch the ground over the roots with rich manure. The water that is applied will wash its virtues to the roots, and the covering will prevent the evaporation of moisture. Soot water given occasionally, with an ounce of salt to a four-gallon pot or pail of water, will stimulate growth, so also will liquid manure made from cow and sheep dung. An ounce of superphosphate of lime dissolved in a gallon of water is good for Celery, but nothing that we know of makes it grow more rapidly than nitrate of soda used at the rate of half an ounce to the gallon of water. You will find it is good practice to vary the stimulants you employ, yet you must apply all of them judiciously, using liquid manure rather weak at first, increasing the strength as the plants become large. You must also remember that by forcing the growth unduly you may induce soft pithy stems, and large heads find no favour with judges unless the stems are very crisp and solid.

Funkias (E. Milton).—You ask, "What Funkias are like?" It is impossible to give you a reply that would be intelligible from any written descrip-



Fig. 9.—*Funkia lancifolia albo-marginata*.

tion alone, but the above figure will enable you to form an idea of the appearance of the plants. They are hardy herbaceous perennials; some have leaves 6 inches long and 2 inches wide, others having foliage twice that size, and the flower spikes range from 1 to 2 feet long. They are beautiful border plants that flower at this season of the year, and you cannot err by securing a collection for your garden. Some have rose-coloured flowers, and others lilac, more or less striped with white, and the foliage is very handsome. You will find them quite hardy in Yorkshire.

Caterpillars on Fruit Trees (D. D. L.).—We are sorry to learn that caterpillars are unusually abundant this year, and are doing great injury to fruit and forest trees in various districts. We doubt very much whether washing the stems of the trees with lime would prove a remedy for the present attack or act as a preventive against future attacks; but the application could not do harm and you need not hesitate to try it. In all probability if you were to syringe the trees with a solution of quassia chips and hellebore powder you would destroy many of the caterpillars. If you mix the hellebore powder with warm water so as to form a paste, then add a gallon of cold water to each ounce of hellebore, and with this mix water in which quassia chips have been immersed for twenty-four hours, at the rate of ounce to the gallon, and apply through a garden engine or hand pump, it will, we think, kill all the caterpillars it touches and do no harm to the foliage of the trees. You had better, however, gather the cherries, if any, before washing the trees. Several fruit trees might be washed in a day, and the labour would doubtless be profitably invested, as if the caterpillars are not destroyed they may destroy the trees.

Neglected Plants (Gardener).—Plants of *Euchariscs*, *Cypripediums*, and *Pancreatiums* in the condition you describe could not have had better treatment

than what you appear to have given them. You had better grow them as generously as possible for some time to come so that they may gain strength. We think it would be decidedly a mistake to withhold water now or to check their growth in any way with the object of inducing flowers, as these if produced would be necessarily poor, and would most certainly be obtained at the sacrifice of the future well-being of the plants. You will do well if you succeed in producing a satisfactory display of Eucharises and Cypripediums in late autumn or early winter, and of *Pancreatums* next year.

Large Gloxinias (*J. Gilbert*).—The flowers were much damaged in transit through not having been well packed. Not one arrived in a perfect state; but we can perceive they are of good substance, and some of them very large, one being 3 inches in diameter. The colours are not so bright and clear as is desirable, but by careful selection and crossing you will soon improve the strain in that respect. The leaf sent is wonderfully fine, measuring 11½ inches by 9½ inches exclusive of the footstalk; and as you say the plants have "not been fed up for the occasion, but grown in ordinary loam and leaf soil, each plant having from thirty to forty expanded flowers," you have been very successful in their production. You cannot do better than continue improving, especially as regards the colour of the flowers, and you will soon have a strain of considerable merit. At present your products are highly creditable to you both as a hybridiser and cultivator.

Mezereum (*Berry*).—This is the old and commonly employed name of *Daphne Mezereum*, a hardy deciduous shrub with fragrant flowers, followed by bright Red Currant-like fruits. It is admirably adapted for suburban gardens and good positions in the front of shrubberies everywhere. It has pink flowers that expand in February or March. There are also red and white varieties, the latter very attractive, which flower in spring, and a reddish-pink kind that flowers in autumn. They are increased from seed and layers, also by grafting on stocks of the Spurge Laurel (*Daphne Laureola*), also raised from seed. The seeds of *Daphnes* are usually two years in germinating, and those you have sown last year may afford you plants next if the seed bed has not been disturbed. It is a common practice to store them in sand until spring and then sow them. If you like to try this plan and have only a few seeds it would be well to mix them in damp sand in a flower pot and bury the pot. If your shrub has branches that can be conveniently bent down and pegged in moist soil they will in due time emit roots. Some shrubs planted rather deeply also produce rooted suckers. Grafting is done in the spring, the stocks being established in pots, and the scions attached and kept in a close warm case or frame until united with the stocks.

Mealy Bug in Peach House (*Kittie*).—We think you may check the increase of the insects, if not cleanse the trees, by forcible and frequent syringings of pure water. Mere sprinklings are of no use, but the water must be applied with as much force as possible short of injuring the foliage. If you can, and we think you can, wash the meal off the insects they will be at your mercy. If pure water will not effect your object mix half a wineglassful of paraffin in each gallon of soft water, agitating very violently. When using first eject several syringefuls into the vessel, then force one in the pail and apply one to the trees alternately. The two fluids will then be mixed, and if the work of syringing is thorough it will destroy the insects; but we should try the pure water remedy first, as we know from experience how effectual it is if effectively applied.

Forcing Rhubarb (*Novice*).—You do not advise us as to the means of affording artificial heat, but we presume there is means of doing so; if not, you will need to provide such either with hot-water pipes or fermenting materials, the latter being most suitable when available. We should arrange to have a pathway up the centre of the building 2 feet 6 inches wide, and should have beds on each side, the sides formed of boards so as to form bins 3 feet deep. These should be filled with fermenting materials, which are preferably composed of leaves—those of the Beech or Oak, to one part of fresh stable litter thrown into a heap and turned over a time or two, mixed, and watered if necessary so as to produce fermentation. Placed in the beds it will heat in a few days, but the roots must not be introduced until the heat has been tested and is on the wane, or declined to below 90°, then introduce the roots, making positions for them about half their depth into the fermenting materials, and filling up between them with rich compost and about a couple of inches above the crowns. The compost used should be moist, so as to lessen the necessity for water until the crowns have started into growth, and then water should be given as necessary in a tepid state to keep the soil thoroughly moist. With a top heat of 60° to 65° it will take three or four weeks to have stalks fit for gathering from the introduction of the roots. The best kind for early forcing is Johnstone's St. Martin's, which, however, is more costly than Victoria, an admirable kind for marketing purposes. Linnaeus is also good for early use. We cannot recommend dealers, but by consulting our advertising columns you will be able to obtain quotations by applying to those who have roots to sell.

Heating Greenhouse (*R. C. A.*).—The proposed number of 2-inch pipes will be sufficient to maintain in a greenhouse 40 feet by 10 feet a temperature of 45° to 50°, in fact two rows of 4-inch pipes would be ample; but there is this advantage in 4-inch pipes, that they do not cool so quickly as 2-inch from the greater quantity of water in the former, hence the necessity of having a proportionately larger extent of surface of 2-inch piping than would be needed of 4-inch. For instance, 1 foot run of flow and return 4-inch pipe will have 288 inches of heated surface, whilst four 2-inch pipes of the same length will have the same number of square inches of heated surface, but only contain half the quantity of water of the 4-inch pipes. This shows the necessity of using more piping with a small than large diameter of pipe. We should have the same number of return pipes as there are flows.

Ducks in the Garden (*C. A. J.*).—Mr. Iggulden can only oblige you by stating that the ducks alluded to on page 514 last volume were obtained by putting the eggs laid by wild ducks under a broody hen. When hatched the hen and ducklings were transferred to the garden, the former being kept confined under a coop, the bars of which are arranged so as to allow of the ducks going in and out till such times as they are independent of the hen mother. They are thus at liberty to roam about, and this they do surprisingly nearly all day long, but more especially when the slugs are generally out—viz., in the mornings and evenings. They are best without water to swim in, but are kept well supplied with water to drink in a shallow pan. They are not so heavy and work harder than the tame breeds, but when nearly full grown are rather destructive among Strawberries and Asparagus. They are now sent back to the lake where the eggs originally came from, but every evening they pay us a visit. It would be useless to get them full grown, unless their wings were clipped. Ducks are much the best workers and less destructive when in a young state; and next season Mr. Iggulden hopes to arrange for three successive broods.

Names of Plants (*R. B.*).—1, *Lonicera Ledebouri*; 2, a *Sisyrinchium*, but specimen insufficient for determining the species; 3, *Solidago Virgaurea*. We do not undertake to name varieties of Irises, Pelargoniums, Roscs, nor similar garden or florists' flowers, but only species of plants. (*Jumbo*).—2, *A. Francisca*, but no one could identify the species from such a fragment; 3, *Cyperus alternifolius*; 4, *Melilotus leucantha*; 5, *Centranthus ruber*; 7, *Polemonium caeruleum*. We cannot name the others; all the specimens were much withered. (*R. F. S.*).—1, *Jasminum Poiteau*; 2, *Passiflora caerulea*; 3, insufficient; 4, *Cobaea scandens*. (*No Name*).—1, *Maranta zebrina*; 2, *Cissus discolor*; 3, *Hibiscus Cooperi*; 4, *Tradescantia zebrina*; 5, *Clorodendron Balfourianum*; 6, *Abutilon vexillarium*. You have sent us neither name nor initials to indicate your plants.

Bees not Swarming (*Clifton*).—The cause of your bees not swarming this year is not owing to bad management or an unfavourable neighbourhood or wrong position in your garden. The present season has been unfavourable for bees, honey-gathering, and swarming. The strongest hives have been late in swarming, and many hives have not yet swarmed. Your case is not singular or exceptional. The fact of your supering and nading one of your hives in May is the reason that the super is empty. Probably the nadir or bottom box is quite full of combs and bees. But be assured that up till the present date (July 7th) all bee-keepers in Great Britain regret the absence of honey weather. There have been plenty of flowers, but owing to the wind being often in the east and north there has been but little or no honey in them. We are now in the middle of the Clover season, and Lime trees are not yet generally in flower, and if we have a spell of fine weather this month we shall have plenty of honey after all. Then, after the Clover season ends, the Heather in moorland districts begins, and continues till about the 10th of September.

COVENT GARDEN MARKET.—JULY 12TH.

THE wet weather has seriously affected the quality of soft fruit the last few days, prices being somewhat lower in consequence, although supplies are heavy. Grapes are again lower, but good samples of Peaches and Nectarines are in demand.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Grapes	lb.	1 6 to 4 0
Apricots.....	box	1 6 2 0	Lemons.....	case	20 0 30 0
Ditto	"	1 0 2 0	Melons	each	2 0 4 0
Cherries.....	½ sieve	6 0 12 0	Nectarines..	dozen	4 0 12 0
Chestnuts.....	bushel	0 0 0 0	Oranges	100	4 0 6 0
Currants, Black..	½ sieve	5 6 6 0	Peaches	dozen	4 0 12 0
" Red.....	½ sieve	4 0 5 0	Pears, kitchen ..	dozen	0 0 0 0
Figs.....	dozen	4 0 0 0	dessert	dozen	0 0 0 0
Filberts.....	lb.	0 0 0 0	Pine Apples, English	lb.	3 0 4 0
Cobs.....	100 lb.	0 0 0 0	Strawberries	lb.	0 6 1 0
Gooseberries	½ sieve	2 6 0 0	Walnuts	bushel	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Asparagus	bundle	3 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney ...	100	1 3 0 0	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	pickling	quart	0 0 6 5
Broccoli	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes	cwt.	10 0 0 0
Capsicums.....	100	1 6 2 0	Kidney.....	cwt.	10 0 14 0
Carrots, new	bunch	0 6 1 0	Radishes....	doz. bunches	1 0 0 6
Cauliflowers	dozen	2 0 3 0	Rhubarb	bundle	0 4 0 6
Celery	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts.....	doz. bunches	2 0 4 0	Scorzoneria	bundle	1 6 0 0
Cucumbers.....	each	0 4 0 6	Seakale	basket	0 0 0 0
Endive.....	dozen	1 0 2 0	Shallots	lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach	bushel	3 0 0 0
Garlic	lb.	0 6 0 0	Tomatoes	lb.	0 6 0 8
Herbs	bunch	0 2 0 0	Turnips, new.....	bunch	0 6 0 0
Leeks.....	bunch	0 3 0 4			



POULTRY AND PIGEON CHRONICLE.

THE SHORTHORNED BREED OF CATTLE.

(Continued from page 23.)

WE now come to a period within our own recollection in speaking of Shorthorn cattle imported into Australia; and we have a vivid recollection of what was called the unbeaten bull, Master Butterfly, belonging to Colonel Townley, when he gained the first prize for Shorthorn bulls over two years old, at the meeting of the Royal Agricultural Society of England's Show at Chelmsford in 1856, which also took the first prize for bulls under two years old at the Carlisle Royal Society's Meeting in the previous year. On seeing this magnificent animal, which was of a bright roan colour, of enormous size and weight, and as near perfection in all his points as we have seen any Shorthorn, and after looking at him with wonder and admiration, and hand-

ling him with great care to ascertain by touch his quality and aptitude to fatten, we thought, as we still think, that his equal may never appear again. It is stated that this most remarkable animal was sold at this time to a Mr. Ward of Geelong, in Australia, for twelve hundred guineas. We were, however, very sorry to hear of this animal's death while travelling under the influence of a hot sun to a local cattle show in the Colony in the year 1858. Master Butterfly was the offspring of the cow Butterfly, of whom we have above related that her showyard winnings were without a parallel. The same cow subsequently produced, when mated with the same bull Frederick, another bull calf, Royal Butterfly, whom we saw as the winner of the yearling prize at the Royal Meeting at Warwick in 1859, and of the first prize for bulls above two years old at the Royal Meeting at Canterbury in 1860. For him also the large sum of twelve hundred guineas was not only offered but refused. Colonel Townley writes saying, "I refused at Warwick for my present bull, own brother to Master Butterfly, twelve hundred guineas." We will now make our last quotation from Mr. Dixon's prize essay: it states, "Prices may at times have been wild and fanciful, and 250 guineas may seem an extravagant bull-hire; but still there is some method in the madness which would give 125 guineas for Oxford 11th as a calf, 250 guineas for her as a three-years-old, and 500 guineas for her as a cow, on the only three occasions that this dam of Fifth Duke of Oxford—the first-prize aged bull at Chester, and a 300-guinea purchase at six months old—was brought into the sale-ring. When we look back to the calm foresight of the Brothers Colling, the courageous confidence of Mason, the Rev. Henry Berry, and Whitaker; Tommy Bates, and all his animated lectures on touch and form in his pastures, or on the showground; a quiet day at Wiseton; the dashing cow and heifer contests between Towneley, Booth, and Douglas; the victories of Duchess 77th, and the Twins; the dispersion of the late Jonas Webb's herd at the steady and paying average of £55 10s. for 145; the brilliant gathering which appraised the Butterflies; £8180 at Willis's Rooms for the seventeen grand Dukes and Duchesses, and then scan the result in so many fairs and pastures, we may well feel that Shorthorns have repaid all the money, thought, and labour which have been expended upon them."

Since the period to which the last observations refer there has been a continuous enlargement of the area to which Shorthorns have been located, and a still greater number of annual sales of the best herds in the kingdom, amongst whom we hope it will not be considered invidious to name Mr. Richard Stratton of Broad Hinton, whose genius and untiring efforts to maintain the value and utility of the Shorthorn breed of cattle has proved highly advantageous to posterity, because he persevered in rearing animals of full milking capacity, as well as perfection in type and style. He, however, died in 1871, leaving behind him a great reputation and a herd which were reared and obtained extensive showyard honours, without sacrificing its milking powers, which few have done in recent times with the same success. In fact, it is the only reproach against the Shorthorn breed, that during a considerable period milk has not been regarded so long as the stock obtained the highest prizes at the Royal and other Agricultural Societies.

We must now allude to the opening of the new departure or era in prices and values set upon the best animals, and this, like many other important epochs in agricultural matters, commenced in America, resulting from that which has not unreasonably been termed the sale of the century, but more especially as regards the extreme prices at which the most coveted animals were sold. Sale of the New York Mills herd, Oneida County, New York. Details of this extraordinary sale which have reached this country are too voluminous for us to give in their entirety as published

in the *New York Tribune*. The origin of the herd was the purchase made by Mr. S. Thorne of New York, of several animals of the Duchess tribe at the famous sale of the Earl of Ducie in 1853. After changing owners several times the entire herd came into the possession of Mr. Campbell, who disposed of them for reasons not made public, in 1873, just twenty years after Lord Ducie's sale. In the New York sale; summary—ninety-three cows, &c., sold for £70,045, averaged £757, equal sixteen bulls sold for £173, averaged £386. Of the thirteen Duchess females one was withdrawn, and one made only £90; the other eleven made £47,800, or £4363 each; the prices varying from £1140 for the twelfth Duchess of Thorndale to £8120 for the eighth Duchess of Geneva. Of these Lord Skelmersdale bought one for £6140; Mr. Pavin Davies one for £8120; Lord Bective three for £7000, £3060, and £2000 respectively; and Mr. Holford of Market Harborough, one for £3140. The others went to Kentucky, or were retained by buyers at New York. In analysing the sale it will be seen that the fifteen descendants of the three daughters (all full sisters) of Duchess sixty-sixth made altogether fifty thousand guineas. It is satisfactory to know that such valuable animals were bought and added to the herds of this country, for no doubt these animals have been carefully managed so as to preserve up to the present time stock of the same untainted pedigree as the originals. Since this sale the sales in this country have continued unceasingly of the very best stock, but prices have rather receded lately for well-bred stock, owing in some measure to the depression existing in agriculture; still, the best and full pedigree tribes make very large sums, and will without doubt continue to do so.

WORK ON THE HOME FARM.

Horse Labour.—This will still consist of preparations for seeding the land for root crops, but especially for common Turnips; and for the main produce we continue to advocate the Grey Stone variety, as they grow quickly, come a good size, keep well, and maintain their feeding value longer than any except the hybrid sorts. The fallows for Wheat will still require constant attention, chiefly by surface cultivation, by which any roots or bunches of couch, black bent, onion grass, and wild Oats will be kept at the top, and by the constant use of the scarifier and Howard's self-lifting drag harrow they will for the greater part be lifted to the surface by the first-named implement, and any roots not so lifted out of the land will be combed out and left on the surface to die. So much is this latter implement preferred at the present time that on most farms well cultivated the old-fashioned wooden-framed drags are not now to be seen. If any land in fallow for Wheat is clean we advise the sowing of White Mustard seed, not for the purpose of feeding off by sheep, but for ploughing down as manure. We have often seen this done with great care, and the Mustard so completely buried out of sight under furrow that it could not be discovered by viewing the work what crop had been buried. We were recently on a farm and viewed the result of this plan of manuring, one-half of the land being sown after Mustard ploughed in, the other half sown after bare fallow manured with farmyard manure, and we estimated the first-named half of the field at three sacks of Wheat per acre more than the bare fallow-prepared and dunged portion. It is the practice on many strong land farms to grow winter and summer vetches, the winter-sown to be fed off in early spring (or as soon as the crop of green fodder is full) by sheep folded upon the land; the spring-sown to follow these are being fed off at the present time. As fast as a portion of the early crop is fed off we like to plough the land carefully, burying under furrow all the unconsumed haulm, and seed the land with white Mustard. Now this plan will ensure a full crop of Wheat without any yard or town manure being required, and this is especially worth the home farmer's attention upon land lying wide from the farmyard and premises, for it thus saves long carriage of the manure. In case, however, of any of the outlying fields requiring manure, guano at seed time and nitrate of soda in the spring are the best substitutes for yard or town dung, for these also save the heavy expenses of cartage attached to the use of straw-made manures.

We notice the second cuttings of Red Clover are coming forward, and are promising a heavy crop either of seed or hay, as may be required on the farm, because under the system of artificial drying of hay, corn, and seed crops the risk of second growth of Clovers, which has hitherto been difficult, will now be not only a safer but an easier process. This is more especially the case in some of the northern and Scotch counties, for where Wheat does not come to perfection Oats are usually grown, but in five years out of six it is difficult to harvest the crop in good condition. Now in the mountainous and elevated districts this new system of harvesting will prove invaluable, not only for hay, but for the Oats, &c., also.

Hand Labour.—Hoeing Mangolds and Turnips will require constant attention, as also Carrots, Cabbage, &c., and any other vegetable crops which may be cultivated on the home farm, and in some cases the crops are varied in different ways, according to the soil, climate, and the requirements of the districts in which the home farmer may be placed.

Live Stock.—The purchase of ewe sheep for breeding lambs for the fat markets usually takes place to a considerable extent at the early fairs whether of Down sheep or Longwools. In the midland districts this matter may be deferred for a while, but in the southern or home counties the sooner the ewes are purchased the better. The next fair will take place at Overton, Hants, July 18th; then Alresford, Hants, July 27th; and Britford Fair, Wilts, August 12th. At all these, and various fairs in Dorsetshire and Sussex, the ewes can be bought soon enough to be mated with the best Down rams at their new home as soon as they arrive from the fairs. The dairy cows where they cannot have a change of fresh grass should now have a good bait of Clover in the racks at milking time night and morning, otherwise Italian Rye grass, water meadow grass, or other green fodder reserved on purpose for them. If they do not get something of this kind the flow of milk will diminish, and they will go dry at an early period, and thus prove out of profit; 4 lbs. of decorticated cotton cake, however, per day will go far to maintain the supply of milk, besides improving the pastures where the cows graze. Fattening bullocks on the pastures also will require some little assistance unless the pasturage is very forcing and plentiful, but especially if it is overstocked in numbers of cattle. But in this case some may now be sold with advantage, especially if drapery cows form part of the herd, for beef generally sells well through July and the early part of August. Cattle in the boxes will now be doing well with 4 lbs. of the best St. Petersburg oil cake allowed them per day added to a full quantity of green fodder, a succession of which should be considerably provided in order that there may be no deficiency in the supply at any time. Some arrangement, too, should be made so that the cake may be given them in the meal state, the best way being always to hold over a little Mangold for the purpose, or otherwise to provide some early Cabbages to be passed through Gardner's cutter twice; in this way the cake meal can be mixed with the root crops without waste. The breeding sows and also store pigs may be now doing well with some green fodder strewn over well-littered yards or large pens, receiving also a few cracked beans or peas twice a day in the troughs.

POULTRY AND PIGEONS

CROSS-BRED TABLE POULTRY.

THIS is no new subject; we have often given our opinion on particular crosses. Of late, however, many questions about table poultry have been put to us, and this is a time of year at which a beginner can obtain well-bred birds at moderate prices, so it seems a favourable opportunity for collecting a few experiences on crossing. At present we are only concerned with the production of table poultry, though of course if the pullets are also good layers so much the better.

At the outset we may be asked if we generally recommend pure-bred or cross-bred birds for eating. Our answer is that this must depend on circumstances. We are fully persuaded that no possible cross can be more excellent on the table than a pure-bred chicken of certain varieties; we should give the palm to Dorkings, Polands, La Flèche, Crève Cœurs, and Game. At the same time where the soil is not suitable to poultry, or where the chickens are likely to be too much left to chance, or where they are required to be reared in enormous numbers, we should without hesitation recommend first crosses. There is a robustness about birds of a first cross which can seldom be got even by constant introduction of fresh blood in a pure breed, and which seems to carry them through dangers of cold and damp and tainted ground in a wonderful manner. There is no risk, too, of interbreeding, for these crosses must be first crosses; all experience shows that to continue to breed from cross-bred birds leads to certain failure and degeneracy.

We do not pretend to have tried a great number of unions, the number which might be made between the now known varieties of fowls would be prodigious. It is simply a question of arithmetic; but the knowledge now possessed of the characteristics of most breeds is enough to show that the majority of the possible crosses would do far more harm than good. There are four crosses from which we have seen good results, and which we can safely recommend; many more may result in hardy palatable chickens, but we have little experience of them.

1, Brahma and Dorking. This is probably the commonest and best known of all poultry crosses. So useful has it been generally found that early Brahma-Dorking pullets often command prices almost of pure-bred stock. The Dorking has long been known

in England as the table fowl *par excellence*, but at the same time, as a delicate bird. We may observe, by the way, that whatever modern poultry fanciers have done for the form and size of the Dorking, they certainly have made it a far harder bird than it was. The Brahma when first imported was found hardy and far less unsightly on the table than most of the Asiatic fowls. We fancy, nevertheless, that its strength of constitution was somewhat over-rated. What, however, more natural than that the old fowl of the country should be crossed with this new much-lauded importation? The result proved generally satisfactory. The chickens grew fast and were hardy; the cockerels became nice table birds at an early age; the pullets were precocious layers and good mothers. Thus the cross has acquired a reputation simply because it has been much tried and succeeded. We do not believe it to be superior to other crosses which have been less tried. It is often a question of which variety the male bird should be. We do not lay much stress upon the point, but are inclined to favour the union of a Dorking cock with Brahma hens, because the latter are more certain winter layers. On the other hand, a Brahma cock is more likely to be a certain father, and will generally last two or three years, while we should advise that only a young Dorking chancier should be kept, and a fresh one procured every year.

2, Crève Cœur and Brahma is a cross not much known, but a very good one all the same. We cannot say much of the beauty of its offspring, but their size is fine and their constitution strong. Their appearance is sometimes most peculiar. The beard of the Crève parent is not reproduced, but in lieu of it huge whiskers appear. The Crève, like the Dorking, is a full-breasted bird, and seems to impart this desirable property to its half-bred offspring. They are plump as well as large-framed, and the cockerels very early fit for the table. The pullets are capital layers. We know a yard in which they are generally kept for winter and spring laying, and are then killed off. By this time they make fine fowls, and must, of course, be hung accordingly, and not dressed like spring chickens two or three days after they are killed.—C.

(To be continued.)

OUR LETTER BOX.

Nitrate of Soda on Farms (*A Fancy Farmer*).—Your "fancy" for applying this powerful fertiliser to land in the autumn is one that we do not approve of. It is far better in our experience to apply it as a top-dressing to crops in spring, when they need some assistance to accelerate their growth.

Poultry for Table (*J. Webb*).—As your Dorkings give you so much satisfaction, and thrive well in your district why do you want to change them for other breeds? Would not it be wiser to add than to substitute? You cannot do better than read the article in the present issue, and the notes we shall publish in continuation on the same subject.

Vermin on Canary (*W. J.*).—Mr. Brent says—"The red mites or cage bugs are a species of Acaris. They live in the cracks and joining of the cages, and at night sally forth to suck and annoy the birds; they multiply in great numbers about the cage and in the nests, tormenting the birds, causing the death of the young, and frequently of the old birds likewise. Some fanciers have recommended the use of the Persian insect-destroying powder; but I have not tried it, finding that by thoroughly cleaning the cages, saturating the cracks with linseed oil, and then filling them with flowers of sulphur, and dusting sulphur amongst the bird's feathers, also by cleaning the nest and sprinkling powdered sulphur in, that I can get rid of these pests."

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882. July.	Barome- ter at 32s and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.				
		Dry.	Wet.			Max.	Min.	In sun.	On grass.			
Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.			
Sun. 2	30.129	63.0	57.2	N.	60.9	74.6	53.2	113.9	51.1	—		
Mon. 3	30.123	64.2	60.5	W.	61.0	77.3	52.9	123.5	52.0	—		
Tues. 4	29.859	59.3	55.1	S.W.	61.9	73.8	57.0	101.7	56.0	—		
Wed. 5	29.533	62.0	57.0	W.	61.1	69.3	55.9	125.5	54.6	—		
Thurs. 6	29.509	62.3	57.0	S.W.	60.3	65.3	53.0	93.0	49.2	0.321		
Friday 7	29.391	57.5	54.2	S.W.	59.0	67.6	51.3	129.0	47.3	0.166		
Satur. 8	29.511	63.1	57.2	S.E.	58.9	67.8	51.1	119.4	45.2	0.225		
	29.721	61.6	56.9		60.3	70.8	53.5	114.5	50.8	0.712		

REMARKS.

2nd.—Very fine, bright, warm, and calm.
 3rd.—Fine, with more cloud, and breezy.
 4th.—Overcast but fair; sunshine at intervals.
 5th.—Bright early; afterwards cloudy with heavy showers.
 6th.—Unsettled, showery, cool.
 7th.—Stormy morning, afterwards bright and fine. [bright.
 8th.—Showery in forenoon; hazy rain for short time at 0.26; evening fine and
 Owing to the increase of cloud the temperature has been more equable, the maximum by day have been lower than in the previous week, but the minimum by night have been so much higher (averaging 53.5°) as to render it the warmest week this year.—G. J. SYMONS.



20th	TH	Helensburgh Rose Show.
21st	F	National Rose Society, Darlington.
22nd	S	
23rd	SUN	7TH SUNDAY AFTER TRINITY.
24th	M	[11 A.M. National Carnation and Picotee Society's Show.
25th	TU	Royal Horticultural Society, Fruit and Floral Committees at
26th	W	Newcastle-on-Tyne Summer Show. Glasgow Show of Pansies [and Pinks.

MIGNONETTE AT CHISWICK.

HEW plants are greater favourites than the sweet and modest Mignonette, which is grown in vast quantities in the neighbourhood of London to supply the demand constantly existing for the flowers. Indeed the culture of Mignonette is a very important feature in many establishments where plants are largely grown for market, and hundreds of thousands of potfuls are collectively sent to Covent Garden in the course of the year. It is not, therefore, surprising that some attempts should have been made to improve so popular a favourite; and as this could only be done by careful and continued selection the progress which has been made is rather remarkable, for several distinct and handsome varieties are now in cultivation which greatly surpass the old and commoner form. This advance is admirably shown by the numerous races or varieties which have been tried at Chiswick this year, all of which possess some distinguishing characters of more or less merit, and several are marked by such excellence that they deserve particular notice. The forms may be conveniently ranked under three types—those in which the flowers have the petals pure white, larger, and more prominent than usual; secondly, those with the anthers large and red, the petals not being conspicuous; and thirdly, those with similar anthers but yellow. When a number of varieties are grown together these distinguishing characters are very noteworthy, the heads having respectively a white, red, or yellow appearance.

Taking the types in the order named above, a few of the leading varieties in each may be appropriately noticed, as the collection affords an excellent opportunity of judging their comparative merits. Foremost amongst the new forms of the first section is Hemsley's Giant White, a beautiful variety possessing several recommendations. In habit the plants are sturdy and compact, the spikes are large, full, and of great length, the flowers very white, the petals being large, and the fragrance is powerful and sweet. It partakes of the merits of Parson's White, a well-known variety, which attracted much attention when first sent out, and is, indeed, probably a selection from that form. The latter is also well represented, and with Garraway's White, a similar variety, bearing handsome spikes of white flowers, we have a trio of the best in the section; to which may be added the grand form, Miles's Hybrid Spiral, for though the flowers are scarcely so white as the others, it has spikes of great size and excellent form, which render it one of the noblest Mignonettes in cultivation when it is thoroughly well grown. These white-flowered varieties are particularly

useful for cutting, as the spikes have not such a dull appearance as some of the others when arranged in bouquets.

In the "red" section the forms are numerous, but several from different firms, though bearing diverse names, resemble each other closely. One of the most distinct and attractive is that recently exhibited and certificated as *pyramidalis grandiflora*, which was received from both M. Vilmorin et Cie. and Messrs. Barr & Son. As grown at Chiswick this surpasses all the others in the size of the spikes both in pots and borders, and in one bed some of the spikes are 6 inches or more in circumference at the widest portion. They are not of great length, but their surprising width, and fine, compact, conical form, render the variety most striking. It is extremely vigorous, with large leaves, but the plants are of medium height; the anthers are reddish, and the flowers very fragrant. Next in order of merit is *Victoria* (Benary), which is one of the most strongly marked red forms, the anthers being large and more deeply coloured than the majority of the type. The spikes are also of good size, very compact, and the habit sturdy. Dwarf Compact from Messrs. Veitch & Sons is the counterpart of the above, except that it is dwarfer and admirably fitted for culture in pots. Both these are first-rate varieties. *Pumila erecta* and *Diamond* (Benary), with *Giant Red Pyramidal* of Messrs. Veitch, Barr, and Henderson, are good forms, the first two being notable for their dwarf habit, and the last-named for the length of the spikes.

From a number of firms, such as Messrs. Veitch, Carter, Cannell, and Henderson, a remarkably distinct yellow-flowered variety was received as *Golden Queen*, and from the continent the same variety came as *ameliorata aurea*, all being precisely alike and equally good. The Floral Committee when recently visiting Chiswick signified their appreciation of this variety by awarding a first-class certificate for it, and this honour it well deserves, for without doubt it is one of the most distinct Mignonettes in culture. The habit is dwarf, sturdy, and compact, the spikes being of moderate size, but with flowers closely set to form a good head. The anthers are numerous and marked by a very notable yellow hue, which gives the spikes a tinge that is very observable when a number are grown together. Few of the varieties represented have attracted more attention from visitors than this one, chiefly owing to its distinct colour.

It should be added that all the Mignonette in pots has been admirably grown, and very rarely has a finer collection both as regards culture and varieties been shown than that exhibited at Kensington a few weeks since from the Chiswick Gardens. With some few exceptions the plants have not succeeded so well in beds, but *pyramidalis grandiflora* must be named as the most remarkable of the former, for in one bed it is much finer than in pots. Mignonette displays a strange partiality for particular localities in this respect; in one it may thrive as well as could be desired, and in another no attention seems successful. Too heavy soil, or one that quickly becomes parched, is unsuited for the plant, the delicate rootlets of which are soon injured either by excess or insufficiency of moisture, and a rather cool slightly shaded position is preferable to one that is fully exposed to the sun. When sown in a border amongst other plants Mignonette often does well, as the slight protection thus afforded seems to suit it, and in situations near much-frequented walks, or in borders under windows, the fragrance exhaled by the flowers is most pleasing, as all well know.

However, the culture of Mignonette in pots is perhaps the most important, and a few hints upon the subject may be acceptable, especially where it is desired to have a supply during winter or early spring, as preparations for sowing the seed should now be made. It is during the early months of the year that Mignonette is especially in demand, and very good prices are then obtained both for plants in pots and flowers. The latter are always valuable to the bouquetists, as they supply a fragrance that is not overpowering, and at the same time the colour is of a neutral tint that can be arranged with any other. All through the year, however, the demand is good, and fairly remunerative prices are obtained, even when it is most plentiful. In most of the large establishments near London, where growing for market is carried on to a great extent, a large proportion of the stock of Mignonette is ready for sale by March or a little later, and many thousands of pots are sent to Covent Garden and other metropolitan markets from then onwards through the summer months. Seed is sown towards the end of the present month or during August, and the plants are preferably grown in frames heated sufficiently to exclude frost and prevent an undue accumulation of damp, which causes the greatest injury to Mignonette in winter. But large quantities are grown in cold frames, covering being employed in severe weather, and, provided that excessive moisture can be guarded against, fine sturdy plants are obtained in this way with vigorous spikes of flowers. One great necessity is a free exposure of the plants at all times when there is not too much wet or frost, as if the frames are long closed the plants soon draw up, become weakly, and flower poorly.

The compost to be employed is an important consideration, and perhaps where failures with Mignonette occur they are chiefly due to mistakes in this direction. A heavy soil that would prove too retentive of moisture, or one that is so light that it dries very quickly, must be avoided; a rich friable loam with a good proportion of leaf soil and lime rubbish, say one-third, constitute a suitable compost, to which a little sand may be added if there is too great a tendency to heaviness. The lime rubbish is a highly necessary element, and though fairly satisfactory success may be occasionally obtained without it, in the majority of cases it is indispensable, and in its absence the best results cannot be ensured. A few of the rough siftings are employed for draining the pots, and they are then filled with the compost rather firmly, the surface being smoothed for the reception of the seeds, which are sown thinly but evenly, very lightly covered with a little finely sifted soil, and watered thoroughly with a fine-rose can. Some growers leave an inch or more of space from the surface of the soil to the rim of the pot to allow of a little rich compost being added as the plants are advancing; but this is by no means absolutely necessary, as, if any additional nutriment is needed beyond that afforded by the soil, supplies of weak liquid manure can be given, though some of the best Mignonette I have seen has been grown without any such assistance.

In sowing the seed, especially where large quantities of plants are grown, some judgment is needed to avoid wasting it, and at the same time to provide for a full pot. When the seedlings are well formed—less than an inch in height, thinning is necessary, retaining eight or ten in a 48 size pot, according to the strength of the plants. Early thinning is advisable, as the soil is then less disturbed in removing the superfluous plants, and the others are not so likely to become drawn. During winter water must be supplied very carefully, always choosing a fine day for the operation, and ventilating the frame as much as possible afterwards, removing the lights; indeed, these should be kept off as much as possible at all times. A cool moist base for the pots to stand upon is important, and perhaps nothing is better fitted for this than a layer of coal ashes or cinders an inch or two in thickness, moderately firm, and well levelled with a rake.

Though frames are preferable, of course Mignonette can be grown in any cool house if the plants be placed near the glass and freely exposed to air, as the great point is to obtain sturdy growth, and it cannot be insured without attention to these matters. As a rule it will be found that market Mignonette greatly surpasses that grown in gardens in this respect, and it

is entirely due to well hardening the plants, so that the slight supports supplied are scarcely needed, and an even potful of vigorous plants with fine healthy foliage and sturdy spikes of flowers are secured.—L. CASTLE.

MUSHROOMS FOR THE MILLION.

(Continued from page 530, last vol.)

INSERTING THE SPAWN.

It is worthy of special notice that those who are extensively and successfully engaged in growing Mushrooms for market, not only find it to their advantage to use spawn liberally but to insert it in large lumps. It is found the best practice to divide a brick into eight portions, and insert these about 9 inches apart, the smooth sides being placed outwards, and level or nearly so with the surface of the ridges. When the work is done those portions are plainly visible and are well represented in the engraving (page 463, last volume). No holes are made for receiving the lumps, but the manure is simply held up with the left hand, and they are forcibly pressed in with the right. There are then no interstices between the spawn and manure for the accumulation of steam, which if allowed destroys the mycelium. The reason why small portions of the spawn bricks are not deemed safe is this—if the bed should happen to be a little too hot or too wet it might injure if not kill the mycelium on the outside of the lumps, and if these were small the danger of the whole being destroyed would be great, but being large the risk of this occurring is reduced to a minimum, as if the outsides of the lumps were damaged, the mycelium in the interior might be as safe and good as ever. The wisdom and even economy of using large pieces will now be apparent. There is scarcely any doubt that numbers of Mushroom beds have been rendered effete by breaking up the bricks into too many and consequently too small portions when using them. It is far better to use large pieces, even if they are inserted at wider intervals, than to use small portions and insert them much nearer together. The somewhat fanciful practice of crushing the bricks almost to powder, and spreading the particles on the surface of a bed as if sowing seed before adding the soil, cannot be recommended. It is not adopted by growers of Mushrooms for market because considered wasteful, as if it results in anything at all it is a myriad of pea-like heads that are worse than useless, as they are not only worthless but arrest the growth of finer Mushrooms from the stronger mycelium in the interior of the bed.

The time for inserting the spawn is when the heat of the bed is decreasing, but has not fallen below 80° Fahr., an inch below the surface. This proper temperature can be ascertained by placing a thermometer in the bed, but it will not be necessary to use it many times. Growers of produce for market judge of the heat by the hand, and when the manure is a little warmer than the hand is when placed amongst it the spawn is inserted. It is never safe to do this when the heat is rising, as it may afterwards increase and kill the mycelium. If the spawn is good and the bed in the right condition the former will commence spreading or "running" in three days. Then, and not till then, the bed is cased with soil. Previously, if needed, it is covered with litter of the thickness requisite for maintaining the necessary heat. After being soiled it is again covered with the same object; and it may be observed that so long as the surface of the

bed under the litter is in the slightest degree warmer than the hand the temperature is right for Mushrooms.

SOIL FOR MUSHROOMS.

An opinion is somewhat widely entertained that it is of no great consequence what kind of soil is used for surfacing Mushroom beds. It is argued that the crop derives its support from the manure, not from the soil; indeed, a scientific writer has stated that soil is not necessary for Mushrooms, and he therefore did not place it on his beds from which he gathered what to him were satisfactory crops. Beyond doubt the material of which a Mushroom bed is made is of primary importance, and its character exerts a great influence on both the quantity of Mushrooms that are produced and their size. But the soil exercises an influence too, and, all other conditions being equal, the cultivator who has the command of strong turfy loam will obtain the greatest weight of produce from his beds. The material with which the Mushroom beds in the caves in France are covered is light and poor, and the Mushrooms are small. The soil which Mr. Barter uses is heavy and turfy, just such as a gardener would covet for growing Roses and Chrysanthemums, and the produce is large, Mushrooms often being cut weighing half a pound each. Thousands are gathered with stems varying from 1 to 2 inches in diameter, the pileus being an inch and upwards in thickness. "Too large," possibly some may say, especially those who only grow small ones; but those who grow Mushrooms for sale and can sell all they grow, are not afraid of growing them too large. For large Mushrooms, provided they are young, fresh, and only partially expanded, there is a great demand, especially in hotels that are patronised by foreign visitors to this country. The French may possibly prefer "buttons" at home; but it is certain they enjoy the large fat "broilers" here, and they seldom fail to ask for the fine rich juicy specimens that they can only find in England. Now to produce these, which are the most remunerative to the grower, strong and rich soil is essential—not soil recently enriched with manure, for the use of that is a mistake, but soil that is naturally fertile—such as the top spit from a pasture in which Buttercups are more plentiful than Daisies, the former indicating fertility, the latter sterility, when they are present in great numbers. There is no doubt whatever that Mushrooms derive a portion of their support from the soil with which the beds are cased. There is the same difference in the character of their roots as there is in those of other plants—in light, poor, and sandy soil they are small and numerous; in strong rich soil they are few and large, and the growth corresponds with the roots—strong when they are strong, weak when they are weak.

The fact that Mushrooms derive support from the soil, and in so doing deprive it of a portion of its constituents, is proved by the circumstance that if the soil is removed from a bed that has produced heavily, and is at once applied to a portion of a new bed, the remaining portion being cased with fresh soil, the difference in the weight of the produce from the two portions will be very apparent and overwhelmingly in favour of the fresh soil. Mr. Plant, a gardener near Manchester, has adduced conclusive evidence that Mushrooms are improved by the soil with which the beds are covered. He says (page 193, last volume), "During the long frost of 1879-80 we had not suffi-

cient material to soil a Mushroom bed, everything being frozen, so we turned a number of old Chrysanthemums out of their pots and used the soil, which had been very liberally mixed with ground bones—so much so that when spread on the bed and smoothed over it looked more like an asphalt walk than a Mushroom bed. The result was marvellous—such a crop of large fleshy Mushrooms as I never saw before." This experience is suggestive, and those who have only poor soil at their command for surfacing Mushroom beds would probably find it profitable to enrich it in the manner indicated, or add bonemeal at the rate of a quarter of a peck to a bushel of soil, and if light and sandy also a quarter of a pound of salt, the whole to be well mixed. But as above intimated, it must not be enriched with ordinary manure, or some unwelcome fungi might, and probably would, become established in the beds and do serious injury. Where soil is good for the purpose in question, yet scarce, it may be carefully removed from the beds, excluding all manurial particles, and mixed to the extent of one-half with fresh soil, turned over a few times during the season, then be used again for further crops. When ordinary garden soil is employed for Mushroom beds it is a safe practice to remove a few inches from the surface that may contain undecomposed manure, and select that immediately below it, always giving preference to strong overlight soil when there is any choice in the matter; but never under any circumstances permit any particles of manure to be mixed with the soil for surfacing Mushroom beds if troublesome, and it may be ruinous, crops of obnoxious fungi are to be averted.—J. WRIGHT.

(To be continued.)

A FEW USEFUL HARDY PLANTS.

SPIRÆA ULMARIA FLORE-PLENO.—This is the common Meadowsweet, with the flowers not unlike miniature white Bachelors' Buttons, in loose heads, on stems varying from 2½ to 3½ feet in height. It is a stately border plant, and it is somewhat surprising that it has not become a more general favourite. We rarely see it even in good collections of hardy plants. For gardens where the soil is cold and heavy this plant is invaluable. It succeeds best in good retentive soils, but will grow well in any ordinary border, and it looks well either associated with the shrubs or brought forward to the front of the border behind the lower growing kinds of herbaceous plants. In pots for a conservatory it is very useful. If for early forcing the plants should be taken from the reserve ground about January, potting them in any good compost, and placing them in a cool house to start them into gentle growth. They can afterwards be introduced into a higher temperature, where they can be brought into flower without being drawn. For blooming during the summer months the plants should be potted any time during early spring, and placed either in a greenhouse, cold frame, or plunged out of doors. Propagation can only be effected by division of the plants, as the flowers do not produce seeds. The best time for dividing the clumps is in spring just before the plants commence growth. A good piece of ground should be selected for the purpose, and if in partial shade so much the better. After planting out the divisions give the bed a good watering, which should be attended to occasionally afterwards if the weather be dry. No further attention is necessary except cutting off the flower stems that may appear, as this will cause the young plants to make stronger crowns. The variegated Meadowsweet is also a very ornamental plant, and deserves more attention both as a border plant or for conservatory purposes.

The double-flowered Dropwort, or *Spiræa Filipendula flore-pleno*, is a very old-fashioned garden plant, and may often be met with in old cottage gardens in its best condition. The value of this plant seems to be better known than that of *S. Ulmaria* fl.-pl., for it is grown both in pots and borders, displaying its beautiful trusses of delicate bloom freely. It is much dwarfer than the Meadowsweet, attaining a height only of from 15 to 18 inches. The flowers, which are somewhat larger than those of

the preceding, are faintly tipped with red, a character more noticeable in plants that are grown out of doors. This is tubercous-rooted, and dividing the plant should be attended to in spring, when every tuber will grow and make a plant.

COCHLEARIA ALPINA.—A few years ago, when travelling in the hilly picturesque country north of Settle in Yorkshire, my attention was attracted by a very dwarf and small-leaved form of *Cochlearia*, which I at once lifted carefully to carry home. The plant in question is very dwarf, scarcely exceeding $2\frac{1}{2}$ inches in height. The leaves are very small, being under one-sixth the size of those of *C. officinalis*, varying in shape from orbicular to reniform. The lobate leaves are few, which adds more to its beauty. The flowers are very small and white, displayed in small erect racemes, only slightly exceeding the leaves in the early part of its flowering season. After a time, which is when the fruits have commenced forming, the stems elongate and become prolific. After the seeds have ripened the flower stems can be cut away; there is then left an ever-beautiful cushion of dark shining green leaves until its flowering season again towards the end of March, when it becomes literally studded with racemes, which continue flowering for about three months. It is of perennial duration, which adds greatly to its value as a garden plant. Most of the forms of *Scurvy-Grass* are said to be annual or biennial, but this one clearly proves that there is at any rate one native form which is not so. The stems emit a number of fine roots, and it may either be propagated by division or by cuttings. I can class it as a gem amongst hardy alpinists, and will doubtless make a good plant for capping the apices of rough bare stones on rockwork. I exhibited it in a pan at the late Manchester Show. It was in good condition then, but a month previous to that date it was much better-looking, being not much unlike a good mass of *Ionopsidium acaule*.—T. ENTWISTLE, *Didsbury*.

ROYAL MANCHESTER AND NORTHERN COUNTIES BOTANICAL AND HORTICULTURAL SOCIETY.

JULY 14TH TO 15TH.

THE Show of the above Society was held in the large exhibition house in the Botanic Gardens, Old Trafford, on the date named. The display of Roses, notwithstanding the inclemency of the weather, was a great success. Dark blooms, such as Prince Arthur, Horace Vernet, Alfred Colomb, A. K. Williams, Senateur Vaisse, and others of the same type and colours predominated, and on the whole were models of perfection. The light kinds showed the effects of the weather to a much greater extent; but that useful Rose *La France*, also *Capitaine Christy*, were really splendid in some of the boxes. The box of Tea Roses shown by Mr. Prince of Oxford were very fine, and staged in the best style.

In the class for seventy-two, distinct, single trusses, there were four collections staged. The premier award was deservedly given to Messrs. Paul & Son, Cheshunt, who were closely followed by Messrs. Cranston & Co., Hereford; Messrs. Davison & Co., Hereford, and James Dickson & Sons, Newton Nurseries, Chester, being third and fourth respectively. The first-prize collection contained good blooms of Senateur Vaisse, bright and full; Horace Vernet, Mrs. Jowitt, Ferdinand de Lesseps, Duke of Edinburgh, very large and bright; Charles Darwin, neat; Louis Van Houtte, Countess of Rosebery, remarkably fine; *La Rosière*, Comtesse d'Oxford, Comtesse de Serenye, Madame Alphonse Lavallée, R. N. G. Baker, Lady Sheffield, neat and of good form; *Souvenir d'un Ami*, Marie Van Houtte, Prince Arthur, Madame Marie Verdier, Madame Hippolyte Jamain, Duke of Teck, Comte Raimbaud, A. K. Williams, Beauty of Waltham, and Comtesse de Nadaillac. Messrs. Cranston & Co. staged excellent examples of Mdlle. Eugénie Verdier, grand in form and colour; Camille Bernardin, Star of Waltham, Mons. Etienne Levet, Duchesse de Vallombrosa, Duke of Teck, Royal Standard, Mrs. Jowitt, Sir G. Wolseley, *La France*, *Capitaine Christy*, Marguerite Brassac, Jean Ducher, and Madame Willermoz. The third and fourth collections also contained good blooms of many of the above-mentioned kinds.

Messrs. Cranston & Co. took the lead in the class for forty-eight triplets, followed closely by Messrs. Paul & Son, Cheshunt, and Messrs. Davison & Co. The first lot containing remarkable examples of *Magna Charta*, *Exposition de Brie*, A. K. Williams, Mrs. Jowitt, Constantin Tretiakoff, Marquise de Castellane, Madame Gabriel Luizet, Dupuy Jamain, *La France*, and *Capitaine Christy*. The second-prize collection included superior examples of *Brightness of Cheshunt*, Dr. Andry, Marie Baumann, Prince Arthur, Niphetos, Catherine Mermet, and Annie Wood. Messrs. Davison's had been injured by the weather, but Belle Lyonnaise and Comtesse de Serenye were extremely fine. Mr. G. Prince, Oxford, was first in the class for twenty-four triplets, and the blooms staged were unsurpassed in the Exhibition for size, substance, or colour. Messrs. Cooling & Sons, Bath, and Messrs. Cranston & Co. were the other successful exhibitors. Mr. Prince's best blooms were Madame Marie Verdier, Madame Marie Finger, highly coloured; Alfred Colomb, superb; Catherine Mermet, Madame Lambard, good; Marie Van Houtte, Senateur Vaisse, Duke

of Edinburgh, *Perle des Jardins*, Prince Arthur, Charles Lefebvre, and *Souvenir de Madame Pernet*.

For eighteen distinct Tea or Noisette Roses Mr. Prince was again well ahead, and staged in the best of condition Madame Lambard, Marie Van Houtte, Catherine Mermet large and full; Amazone, Rubens, grand; Anna Ollivier, *Souvenir de Madame Pernet*, *Souvenir d'Elise Vardon*, *Souvenir de Paul Neyron*, and President. Messrs. Paul & Son were second with smaller but very neat blooms, having good examples of Madame Lambard, *La Boule d'Or*, Jean Ducher, *Souvenir d'un Ami*, and Madame Willermoz.

In the class for twelve new Roses, single trusses, not in commerce previous to 1878, Messrs. J. Dickson & Sons, Chester, were distinctly first with fresh well-coloured flowers of Duke of Teck, Pride of Waltham, May Quennell, full; Duchess of Bedford, Julius Finger, Crown Prince, A. K. Williams, Countess of Rosebery, large and good form; Madame Ducher, Edward Dufour, and *Brightness of Cheshunt*. Messrs. Cranston & Co. were second with neat but smaller blooms of Masterpiece, Crown Prince, Pride of Waltham, Madame A. Dumesnil, Gloire de Bourg la Reine, Mdlle. Marguerite Manion, Comte Horace de Choiseul, and Barthelemy Joubert. Messrs. Paul & Son were third with good blooms of R. N. G. Baker, Mdlle. Marguerite Manion, and Pride of Waltham. There were five entries.

In the class for twelve single blooms any dark Hybrid Perpetual, Mr. Prince was first with grand blooms of A. K. Williams; Messrs. J. Dickson & Sons second with good Marie Baumann; and Messrs. Cranston & Co. third with smaller but good examples of Alfred Colomb, four collections being staged. In the corresponding class for twelve light Roses Mr. Prince was again first with *La France*, Messrs. Davison & Co. and J. Dickson & Sons taking the remaining prizes with the same variety.

Amateurs' Classes.—The Roses in the amateurs' classes, both open and local, were throughout good. Mr. John Burrell, Darlington, took the lead with thirty-six single trusses, followed closely by the Rev. Canon Hole with blooms equally good in size and form but scarcely so bright. In the first collection Countess of Oxford, François Michelin, Victor Verdier, Dupuy Jamain, Etienne Levet, Alfred Colomb, and Innocente Pirola were all good. Canon Hole staged fine blooms of *Souvenir d'Elise*, Marie Van Houtte, Duke of Wellington, Madame Hippolyte Jamain, and Madame Caroline Kuster. For eighteen triplets the last-named exhibitor was first, the most striking blooms being *Capitaine Christy*, Antoine Ducher, *La France*, Etienne Levet, *Souvenir d'un Ami*, and Madame Sophie Fropot. Mr. G. P. Hawtrey, Slough, was the only exhibitor in the class for twelve Teas or Noisettes, and staged very creditable blooms, for which the first prize was awarded, the best examples being *Alba Rosea*, Archimede, Niphetos, Madame Lambard, and *Devoniensis*.

In the local amateurs' class for twenty-four single trusses there was good competition, some even collections being staged. W. Brockbank, Esq., Didsbury, was first, having excellent blooms of the standard varieties before mentioned. W. L. Palfrey, Esq., Altrincham, was second; and Mr. Thomas Walkden, Wellington, third. For twelve blooms E. J. Thomson, Esq., Timperley, W. S. Palfrey, Esq., and Mr. J. R. Ward, Timperley, were the prizetakers as named, an extra prize being awarded to John Davenport, Esq., Altrincham. For six blooms Messrs. Palfrey, Thomson, and James Brown, Heaton Mersey, obtained the awards.

Bouquets.—In the class for three Mr. Mason, Victoria Street, Manchester, was deservedly placed first. One was entirely composed of a few dark buds and the rest *Maréchal Niel* with a tasteful intermixture of foliage; the next of a pink Tea and Niphetos, the third being divided into four quarters by dark Rose buds, each quarter being filled with various-coloured Teas with small buds of Niphetos standing well above the rest. Messrs. Cranston & Co. were second with neat examples, a good number of Moss buds being used. Messrs. Davison & Co. third. In the class for one bouquet the same exhibitors took the awards in the order as named for the three.

Miscellaneous Exhibits.—Messrs. Cole & Sons, Withington, contributed considerably to the effect of the Exhibition with a choice assortment of small stove and greenhouse plants, including Ericas, Crotons, Dracaenas, Palms, Ferns, Ixoras, Gloxinias, and others; also stove and greenhouse cut flowers in boxes. Messrs. F. W. & H. Stansfield, nurserymen, Sale, Cheshire, sent a collection of choice varieties of hardy Ferns; Messrs. Dickson, Brown & Tait boxes of cut Roses and herbaceous cut flowers; Messrs. Dickson & Robinson staged a similar but larger display; Messrs. Cooling & Sons, Bath, staged a large number of cut Roses in boxes and baskets. Mr. Samuel Barlow, Middleton, exhibited a very fine collection of Persian Ranunculus, which excited much attention and praise both from the Judges and public, and the Society's gold medal was awarded to Mr. Barlow for this unique contribution to an excellent Show.

OMPHALODES LUCILÆ.—This is a lovely alpine, native of Southern Europe, of very dwarf habit, a favourite with all connoisseurs in such plants. Leaves on short petioles, ovate-oblong, blunt, very glaucous. Flowers produced in lax panicles, about half an inch across, with saucer-shaped corollas of a porcelain blue colour tinged with pink. Most distinct and pretty, appearing throughout all the summer months. It was for a long time considered a very miffy plant, and is still treated as such by some growers. Such treatment ruins it, as it enjoys full exposure. Mr. Ewbank once remarked to the

writer respecting this plant, "It does like a weed in my garden;" and so it does, and in other places besides. The rockery is certainly its proper place, placed close to a ledge of stone so that the panicles can droop over; but it may also be planted in the border if the position is thoroughly drained and the plants supplied with very free soil, then it will flourish.—N.

FORMAN'S EXCELSIOR STRAWBERRY.

LAST year Mr. Laxton and other cultivators wrote approvingly of this variety, of which Mr. Gilbert has now sent us fruits. Two of these, showing the cockscomb (fig. 10) and conical form (fig. 11), are represented in the annexed engravings.

Mr. Gilbert writes in reference to this Strawberry:—"This being the first year of this variety fruiting here I cannot confidently speak of it as I believe it deserves; nevertheless, I may say it promises remarkably well. Forman's Excelsior has one really good property—it ripens the later fruit and swells them off in a remarkable manner. The flavour is all that can be wished; the size is also satisfactory, and the robustness of the plant is extraordinary. Small plants turned out of small 60-sized pots and planted on good land last August have now the appearance of

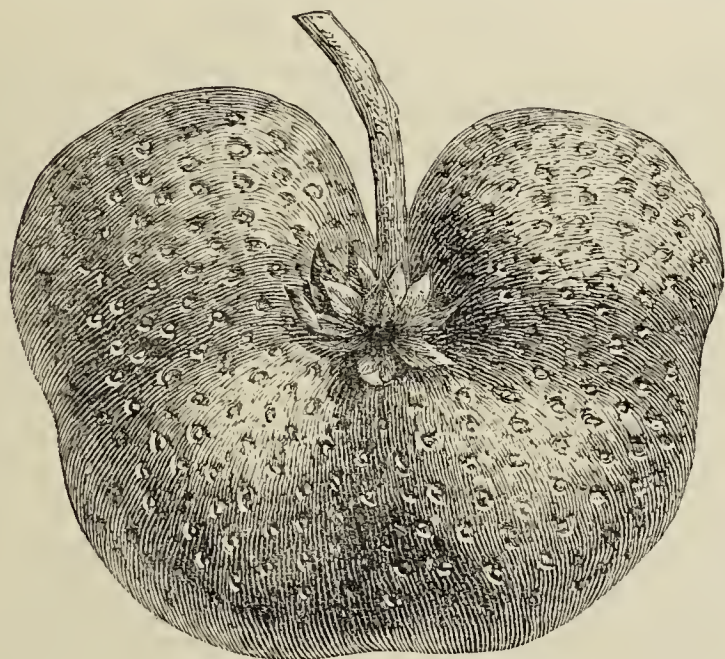


Fig. 10.

two-year-olds. I may add that too much manure would, in my opinion, grow the plants too strong."

From Mr. Henry Boothby of Louth, Lincolnshire, we have received the following account of Forman's Excelsior:—"This variety was raised by Mr. Forman of Louth about eight years ago. Its progenitor was James Veitch, and it partakes of the quality of its parent as to early productiveness. Its historical career commenced in July, 1875, at the Nottingham Arboretum Show, open to all England, when the Judges awarded it a first prize for the best new variety of Strawberry, a good judge remarking at the time, 'it certainly is the finest fruit yet raised for size, colour, and flavour combined.' A correspondent in last week's Journal says it is early like Garibaldi, and as large again in size, but some of the fruits are hollow. I have grown it for years, and must say I never saw any failing of this kind. One thing is to be avoided in its culture, and that is too rich soil. If this be given the plant makes growth to the detriment of the fruit. The weight of several fruits gathered this week was 1½ oz., and the size 8¾ inches in circumference each."

We subjoin a description of the sample of Forman's Excelsior which Mr. Gilbert sent to us. Fruit large, varying from a symmetrical conical shape to a wide-spread cockscomb. Skin dark red, of uniform colour all over its surface, which is rather deeply pitted with moderately sized seeds. Flesh firm, tinged pale scarlet throughout, quite solid, juicy, rather briskly flavoured, and with a fine aroma. This is an early Strawberry, as large and as handsome as President, than which it is richer and rather more sprightly in flavour.

This appears to be a variety of considerable merit; and the hollowness of the fruit, which was referred to last week, was probably due to luxuriant growth of the plants and too generous culture, as we observe that both Mr. Gilbert and Mr. Boothby indicate that rich soil is undesirable for a variety of which the habit seems to be naturally robust. Now that Forman's Excelsior is

being distributed we shall probably hear more respecting its merits another year.

COTTAGERS' CROPPING.

NOTICING last year a successful example of cropping on a cottager's allotment I think it worth while to record it. It was adjoining a main road, and three good crops of vegetables were obtained with once digging and manuring. This piece of ground (about 12 perches) was manured and dug in February and the early part of March, and Myatt's Prolific Potato planted in rows 2 feet asunder before the last-named month was out. In the middle of June, the Potatoes having been hoed and earthed up, and the tops nearly meeting in the rows, Brussels Sprouts were planted between every alternate two rows, the haulm of the Potatoes being turned inwards into the furrow in which the Sprouts were not planted, thus giving them more light and air. Before the end of July the Potatoes were all forked out, thus leaving the rows of Brussels Sprouts 4 feet apart. The land when the Potatoes were cleared was levelled with a fork, the loose haulm removed, and white Turnip seed sown broadcast thinly in the 4-foot space, but not close to the Sprouts, and being showery weather at the time the Turnips made good progress, and were in use from the end of September till January. Many gardeners, and cottagers too, no doubt resort to the same practice, but to any who have not tried it these remarks may prove of some service. For the Brussels Sprouts to succeed it is essential that the Potato haulm be turned away from them with the hand into the space where none are planted. My coarse-growing Potatoes would not be good for this kind of cropping, but the early Ashleaf kinds are very suitable. —A. H.

LILIUM PARDALINUM.

MR. GEORGE WILSON of Heatherbank, near Weybridge, a most successful cultivator of Lilies, when visiting my garden last spring paid a great compliment to *Lilium pardalinum*, which were then in an early stage of growth. He said that they surpassed in size and vigour anything he had been able to produce in Surrey, and I must own that I have never seen them grow so fine anywhere else; I may venture, therefore, to give some account of their cultivation.

L. pardalinum has an extensive native range in the mountainous districts of the United States. Several local or accidental varieties have received distinct specific names, but intermediate forms of every gradation show them all to belong to one species. Mr. Elwes in his Monograph of Lilies gives it the name

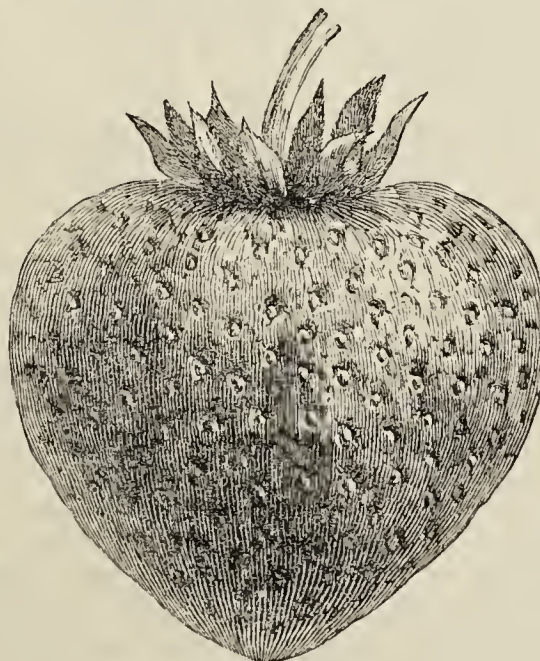


Fig. 11.

of the Californian Lily. The name "californicum," however, is generally given to a very beautiful and distinct variety, of which the growth is less robust, but the flowers larger and deeper in colour, with the ground of the centre nearly white; they are also produced in smaller numbers—seldom more than three or four on a stalk—than in the type of the species.

The ordinary *L. pardalinum* grows to a height of from 7 to 9 feet, sometimes bearing as many as fifteen flowers on a stem, which is more or less branched above the lowest flowers. Another distinct form generally bears the name of *L. Michauxii*. In this

variety the whorls are more densely set with leaves, and the leaves more slender and pointed; the flowers are smaller, but abundantly produced; the general growth is less robust, but the increase very rapid. These three represent the most distinct forms, but there are many others possessing characters more or less marked, though perhaps all may be found amongst those imported and sold under the general name of *pardalinum*.

As regards cultivation, I believe that this Lily finds something especially congenial in the peat which I procure from the hills near me. The beds are dug out to a depth of 4 feet, thoroughly drained, and filled with a mixture consisting of two-thirds or three-fourths, or even more, chopped peat. The more peat the better this Lily seems to like the soil. As for situation, I have come to think that in the cloudy and rainy climate of Cheshire they cannot have too much sun. The surface of the bed is covered with *Ledums*, *Menziesias*, slow-growing *Ericas*, *Azalea mollis*, and similar shrubs. One I formerly recommended, *Pernettya mucronata*, grows too fast and roots too thickly on the surface, robbing the soil. Many of the *Epimediums* are good, but *E. pinnatum* I find liable to the same objection as the *Pernettya*—making too strong growth. The use of these plants is to keep the surface of the soil cool, and to protect the young growths in spring. I do not like the shrubs to be more than a foot high, or the growth of the Lilies is apt to be drawn too much. A late spring is to be desired for these as well as for other Lilies.

L. pardalinum has never been killed by frost in my garden, but when they have grown clear of the shrubs the point of the shoot is very sensitive and easily destroyed by frost. The more advanced it is the more tender it becomes, and every year I have several heads spoilt by late frosts: this year some were killed at the beginning of June. The capricious way in which the frost takes a head in the middle of a bunch, leaving those around it quite unhurt, is unaccountable. With the exception of *L. Hansonii*, which forms its buds so unfortunately early that I have never yet been able to make it flower out of doors, *L. pardalinum* is the worst sufferer from late frosts. Still 90 per cent. of the stalks generally escape unhurt, and make a grand forest of flowers about the middle of July. The beds, however, have to be filled with upright iron rods from 7 to 9 feet high, far more thickly, in proportion to their size, than the poles in a Hop yard. The stalk is so soft and brittle as to require to be tied against every wind, even in the most sheltered position I can give, but then my garden is a windy place. All the varieties of *L. pardalinum* increase fast, not less in my soil than threefold every year, and I have never left them for more than three years in the same spot. The bulbs soon grow in a cluster on the surface of the soil, and the heads become so crowded that the flowers cannot expand properly. I have now begun to plant them in my mixed flower beds, where they seem to be doing pretty well, but not so well as in the peat; but all my flower beds are artificially drained, and consist of made soil, or the stiff cold native clay would make all gardening hopeless.

Much has been written about the best time for transplanting Lilies. The question is an important one, for some Lilies seem to take three years to recover from transplanting, and we know that the roots of many kinds of Lily are in active growth when there is no indication of growth above ground. Mr. Wilson has told us that he has often found Lily bulbs grow and continue healthy for years without anything appearing on the surface. In all gardening operations, however, experience is better than theory, and in the case of *L. pardalinum* and most other Lilies I have found spring the worst and early autumn the best time for transplanting. When the tops begin to turn colour, but have still life in them, most Lilies are moved with least cost to their next year's growth.

L. pardalinum does not suffer much from the attacks of slugs or other ground vermin, and, though the stalks are often attacked with spot, that disease is not so destructive as it is to other Lilies. The flowering of many stalks not only of *L. auratum*, which, being latest, suffers worst, but of *L. Humboldtii*, *L. canadense*, *L. superbum*, and others, is annually destroyed in my garden by this troublesome atmospheric blight. Happily, though it may be contagious, it is not hereditary or persistent, for I make a practice of marking by labels the worst cases, and not unfrequently find that those very bulbs which are worst affected one year are amongst the finest and most healthy the following year. *L. pardalinum* seldom shows signs of spot until the flowering is nearly over, and then not to such an extent as to kill the leaves and stalk prematurely. As far as my experience of Lilies extends this is far the best of all the American Lilies for general cultivation in gardens.—C. WOLLEY DOD.

caoutchouc-yielding Apocynaceæ of Malaya and Tropical Africa. After giving a general sketch of the structural and physiological conditions of the occurrence of caoutchouc in plants, the author pointed out that the plants which appeared to yield it in commercial quantity in three widely separated regions all belonged to one tribe of Apocynaceæ, the *Carisseæ*. In the East Indies the "gutta singarip" of the Malay Peninsula, the "gutta soosoo" of Borneo, was the produce of a new species *Willughbeia*, *W. Burbidgei*. Many other species of this and allied genera also seemed to produce caoutchouc in quantity worth collection. In central Africa *Landolphia*, which was closely allied to *Willughbeia*, but differed in possessing terminal instead of axillary flowers, was the most important source. On the east coast caoutchouc was yielded by *L. owariensis* and *L. florida*, the latter a very ornamental plant. As the rubber exuded from the cut stems, it was plastered by the collectors on the breast and arms, and the thick layer when peeled off and cut up into squares was called "thimble rubber." On the west coast the most important species was *L. Kirkii*, the rubber of which could be wound off into balls or small rolls from the cut stems, like silk from a cocoon; this species was called "Matere." *L. florida* also occurred, and was called "m'bunga;" its rubber was worked up into balls, but was inferior in value. The rubber of *L. Petersiana* was of little importance. In South America *Hancoria speciosa* yielded what was called "mangabeira rubber."—(Nature.)

CARDIFF ROSE SHOW.

THE second Exhibition of this flourishing child of the National Rose Society was held in the Drill Hall, Cardiff, on Wednesday last, and notwithstanding the unfavourable "skye" influences, which have—by the constantly recurring showers—sadly militated against the freshness and brightness of the flowers, was greatly in advance of its predecessors. There were some excellent boxes of blooms and some very fine flowers shown, but there is still great need for improvement amongst the local growers, many of their exhibits being of an inferior quality, and manifesting a most heroic disregard of names. Still there was improvement. The absurdity of added foliage had been done away with; and although some still exhibited in the old slovenly style, yet I believe we shall see here, as we have seen elsewhere, that the presence of good exhibits showing the standard which is to be reached will have its effect. That the Society, under the able and genial secretaryship of Mr. Pettigrew, is a flourishing one may be gathered from the fact that two gold medals of the National Rose Society were given as prizes, and that a very liberal schedule inducing growers from a distance to compete was provided, in which, as in the parent Society's schedule, provision was made for all comers. Happily the day was fine, and a large number of the inhabitants of this busy place availed themselves of the opportunity of enjoying the feast of Roses and the performances of a very excellent band.

The following were the chief awards. Class 1, for forty-eight distinct varieties, the first prize was awarded, together with the National Society's gold medal, to the Cranston Nursery Co., Hereford, for a fine stand containing the following varieties:—*Capitaine Christy*, *Louis Van Houtte*, *Madame Vidot*, good and rarely seen now; *Charles Darwin*, *Marie Finger*, *Comtesse d'Oxford*, *Madame Gabriel Luizet*, *Mrs. Baker*, *La France*, *Reynolds Hole*, *Elie Morel*, *Duke of Teck*, *Comtesse de Serenye*, *Dingé Conard*, shown as we never see it by anyone else; *Royal Standard*, fine; *A. K. Williams*, *Madame Lacharme*, *Marie Rady*, *Jean Ducher*, *Fisher Holmes*, *Marquise de Castellane*, *Auguste Neumann*, *Catherine Mermet*, *Senateur Vaisse*, *Marquise de Mortemart*, *Marie Baumann*, *Lælia*, *Duke of Edinburgh*, *Madame Charles*, *Marguerite Mandin*, a Rose unknown to me—a large-petalled flower; *Général Jacqueminot*, *Baronne de Rothschild*, *Horace Vernet*, *Duchesse de Vallombrosa*, *Penelope Mayo*, *Souvenir d'un Ami*, *Alfred Colomb*, *Souvenir de la Malmaison*, *Mrs. Jowitt*, *Princess Mary of Cambridge*, *Jean Liabaud*, *Marie Van Houtte*, *John S. Mill*, *Bouquet d'Or*, *Pierre Notting*, *Marguerite de St. Amand*, and *Duke of Wellington*. In the class for twenty-four trebles the same firm was again first with the stands containing a selection from the above varieties. They were also first in the class for twenty-four singles, and still again first for twenty-four Teas—a fine box containing *Souvenir d'un Ami*, *Madame Emilie Dupuy*, a Rose I did not recollect to have seen before—a well-formed flower of the *Gloire de Dijon* type; *Madame Manin*, *Jean Ducher*, *Madame Willermoz*, *Marie Van Houtte*, *Catherine Mermet*, *Perle des Jardins*, *Anna Ollivier*, *Gloire de Dijon*, *Madame Bravy*, *Adam*, *Souvenir de Paul Neyron*, *Madame Lambard*, *Devoniensis*, *Madame Sertot*, *Madame Margottin*, *Triomphe de Luxembourg*, *Caroline Kuster*, *Madame Camille*, *Marie Guillot*, *Madame Furtado*, and *Madame Hippolyte Jamain*. In twenty-four of one variety they were equal first with Mr. Grant with *Mrs. Jowitt*, and first for the best twelve Teas of one kind with *Niphetos*, thus truly making a clean sweep of the first prizes. Messrs. Davison were good seconds in most of these classes.

Amongst amateurs Mr. G. P. Hawtrey of Slough and Mr. W. Grant of Ledbury were the chief exhibitors, showing excellent stands of slightly weathered flowers, although much less so than might have been expected. In the class for twenty-four Mr. Hawtrey won the first prize and the National Society's gold medal with *Charles Darwin*, *Souvenir d'un Ami*, *Hippolyte Jamain*, *Jules Finger*, *Jean Liabaud*, *Alfred Colomb*, *John Hopper*, *Capitaine Christy*, *Madame Boutin*, *Maurice Bernardin*, *Richard Laxton*, *Comtesse de Choiseul*, *La France*,

INDIARUBBER PLANTS.—Mr. W. T. Thiselton Dyer recently brought before the Linnean Society an important communication on the

Madame Victor Verdier, Thomas Mills, Etienne Levet, Comtesse Riza du Parc, a good bloom of this capricious beauty; Mons. E. Y. Teas, Comtesse de Nadaillac, very lovely; Duke of Teck, Souvenir de Paul Neyron, Ferdinand de Lesseps. He also won the first prize for twelve Teas, amongst which Marie Van Houtte, Madame Hippolyte Jamain, Caroline Kuster, Alba Rosea, Niphotos, Souvenir d'un Ami, Souvenir de Paul Neyron, Catherine Mermet, and Madame Willermoz were very fine. Mr. Grant was first with eighteen trebles, and Mr. Barrington first with twelve of one sort with a good stand of La France, and Mr. Grant first with six Teas of one sort with Souvenir d'un Ami. Mr. A. Pettigrew was first for the Marquis of Bute's prize for the best box of York-and-Lancaster. These were the principal stands, and as space is limited I must not give the names of other winning flowers. The arrangements of the Show were excellent, and much praise is due to Mr. Pettigrew and Mr. Taylor, who, aided by a good working Committee, have managed to establish a flourishing Society, which as years go on will, I doubt not, be one of the largest of our provincial exhibitions.—D., Deal.

MELON SETTING—THE EFFECTS OF BOTTOM HEAT.

THE training, the soil, the variety, the treatment, generally have much to do with a good set of Melons or the reverse. When allowed to grow wildly instead of having the growths properly trained, regulated, stopped in order to concentrate growth, Melons often fail to set. When soil is too poor, too light, or too rich, the crop fails. Even when properly trained and properly fed a poor crop follows if the variety grown is a shy setter; while bad treatment generally, causing weakly health, will spoil everything, no matter how orthodox the training, how good the soil, or prolific the variety.

Independent of all these causes of failure there is another which may never have been suspected—we mean too high a temperature in the soil. That steady bottom heat is of much advantage nobody will deny, but when that is overdone the result is growth so wanting in strength as to be incapable of carrying a crop. I am not prepared to state what is a proper figure for bottom heat, but my experience is that 70° is better than 90°, for the latter, while it insures a rapid and even a vigorous growth, is against a free set. With the bottom heat at 70° the crop is larger. I am free to confess, however, that with the higher temperature superior fruit, more especially in flavour, is obtained.

In my case the heat cannot always be regulated, for three compartments are heated from one boiler. When the heat can be regulated care should be taken not to have a too high bottom heat till a full crop is set. In the case of dung beds they should be built as narrow as possible, and even have holes through them should the bottom heat exceed 80°. When the fruit is set linings can be applied to keep the heat from declining, or even to raise it, especially in case of crops ripening late in the season.—SINGLE-HANDED.

CARNATIONS FOR TOWNS.

IN the immediate neighbourhood of towns cultivators of outdoor flowers often experience considerable difficulty in obtaining their favourites in satisfactory condition, and many have to lament grievous failures in their attempts to add to the number of plants that can be grown in such situations. How many have endeavoured to acclimatise that popular favourite the Rose within the smoke radius of London, and how few can record even a moderate share of success! For the autumn we have the Chrysanthemum it is true, and that is a host in itself; but for the summer months the urban gardens are rendered bright usually by a few of the stereotyped bedding plants, amongst which scarlet Zonal Pelargoniums are frequently too prominent.

Perhaps there is no class of really hardy plants so well adapted to take the place of the Rose in city gardens as the Carnations and Picotees, which flower at the same period, and with little care give far more satisfaction. Mr. E. S. Dodwell's success with these plants, even from a florist's point of view, is well known, and yet the flowers which secured him such high honours were all grown under what might be considered very unfavourable circumstances—in a densely populated district, and in unpleasant proximity to a railway where hundreds of trains passed daily. It would, however, be difficult to find a better example of the excellent results that can be obtained in the culture of Carnations as hardy border plants in towns than that afforded by the collection in Messrs. J. Veitch & Sons' nursery at Chelsea, which is now in superb condition, and will doubtless yet improve for a week or more. Several thousands of plants, which had been grown in pots during winter, were placed out in beds in early spring, and with ordinary

careful attention to watering and other little requirements a display of flowers has been obtained that could not be excelled; in fact, one of the first points which strike a visitor is the astonishing floriferousness of the plants generally, and in some varieties particularly. Buds and flowers in all stages are most abundant, several of the more vigorous sorts having over five dozen on each plant. Neat and not too conspicuous stakes are employed, and as a result some of the beds present an even mass of flowers, the beauty of which either individually or collectively cannot be over-estimated. To further improve and prolong their attractions a light awning is placed over each bed at a convenient height, so that visitors can freely inspect the beds and yet injury from heavy rains or too powerful sun is obviated.

A large number of the best varieties in cultivation are represented, including several novelties, but it will be only necessary to point out a few of the best, preference being given to those which, from their vigorous habit, effective colours, and floriferousness, appear to be the best suited for general culture, though some of these would possibly be passed by rigid adherents to the florist's standard. The Carnations are the first deserving of notice; and it may be here observed that, beautiful and delicately coloured as the Picotees undoubtedly are, they cannot rank with their rivals in brilliance and effectiveness. The self Carnations in particular are extremely showy, especially in large beds, and the freedom with which they bloom is no mean recommendation



Fig. 12.—*O. longosum* Alexan. var. (See page 59.)

where flowers are largely in demand. Of the several fine varieties represented at Chelsea one that is likely to attract very general attention is W. P. Milner, a most promising novelty, with pure white blooms of good size, full and even, and produced in astonishing numbers—four, five, or even six dozens of blooms and buds by each plant. Such a variety would possess inestimable value to a gardener, yielding a rich supply of handsome white blooms, which are always in request. Virgo and The Bride are two other fine white-flowered varieties of great beauty, but not so remarkable as the preceding. Sulphur King, King of the Yellows, and Stanstead Yellow are three of the best yellow selfs, the first-named being dwarf and free. A new variety named Florence is, however, worthy of notice in this section; the blooms are bright yellow with an orange tinge, they are very large and full, and are produced in great numbers. Amongst the rose selfs Mrs. Teigner, with large handsome richly coloured blooms, was especially notable; Gertrude Teigner, though of paler colour, is also a pleasing variety, the blooms being of good size and freely produced; Lothair, also pale rose, with the preceding forms an excellent trio. Purple selfs are very handsome, the two finest being Auctioneer and Royal Purple; the former having blooms of medium size, of a rich purple tint, and produced in great numbers; the latter being similar in habit, but the flowers of a rather

brighter crimson purple hue. Scarlet selfs are very abundant, and all are more or less attractive. *Magnum Bonum* deserves the lead for its dark scarlet blooms are not only of great size and substance, but they are so abundant that the plants have an exceedingly showy appearance. *Crimson Pet* is distinguished by its peculiarly rich colour—dark scarlet maroon. *Coroner* is a brilliant scarlet self, with large well-formed blooms; *Fireman*, *Duke of Wellington*, *James Wilkins*, *Dan Godfrey*, and *Sportsman* being all scarlet selfs of considerable merit, varying slightly in the depth of shade, but similar in substance and quality of flowers.

In the other sections of Carnations the scarlet and purple flake varieties are most noteworthy at Chelsea; for though the bizarres are also admirably represented, they are scarcely so effective, and that is the point of view in which they are now being considered. Of the scarlet flakes *Candidate*, *Adrian*, *Lord Lyons*, and *William Mellor* have large handsome flowers, the last-named being particularly fine. The best purple flakes are *Earl of Stamford*, *Captain Jinks*, *Squire Meynell*, and *Bellerophon*, all richly coloured. The rose flakes are also very attractive, and they are all so good that it is difficult to make a selection; however, the following are noteworthy for their size, substance, and clear colours:—*Lord Chelmsford*, *Mrs. Anderson*, *Lord Beaconsfield*, and *Lady Mandeville*. Amongst the scarlet bizarres *Rembrandt*, *Douglas*, *Brilliant*, and *George Rudd*, the last being an extremely dark variety, are all meritorious; while the crimson bizarres *Rifleman*, *Isaac Wilkinson*, and *Albion's Pride* are the leading forms in that section.

Picotees are largely represented, but it is noteworthy that as border flowers the most suitable amongst these are the heavy-edged varieties, those with the fine margins being very beautiful when cut and staged, but their attractiveness is to a great extent lost when they are viewed at a distance. *Edith Dombrain*, a heavy rose-edged variety, is one of the most effective, and *Elise* is another good one of the same type. *Mrs. A. Chancellor*, a heavy purple-edged form, is very handsome. *Norfolk Beauty* is also a showy variety of that type. *Queen of Summer* is a new medium crimson-edged *Picotee*, with neat flowers, the margin very richly coloured. *Mrs. Brown* is a heavy-edge form, of similar colour to the above, and very striking. One other fine heavy crimson-edged variety need only be noticed—namely, *Coxswain*, which has large handsome flowers which are produced with great freedom. The best of the light-edged forms are the following:—*Rose and red*, *Bandmaster*, *Miss Skinner*, and *Miss Wood*. Purple, *Cynthia*, *Her Majesty*, and *Woodie*.

CHRISTLETON ROSE SHOW.

CHRISTLETON is situated two miles out of Chester. It has a Rose Show of growing pretensions, very well managed, easy of access, and worth attention on the part of exhibitors. The Show this year was held in the rectory grounds on July 11th; and though the afternoon turned out wet and diminished the number of visitors, those who braved the elements found a large tent full of beautiful Roses, superior both in quality and quantity to any seen in the neighbourhood.

In Section A, open to all (nurserymen included), the competition for thirty-six single blooms was reduced to a match between the two Chester firms, Messrs. James Dickson & Sons, and F. & A. Dickson and Sons; the former winning with a good box, the best blooms being *Xavier Olibo*, *Le Havre*, and *Eugénie Verdier*; the latter showed good blooms of *Marie Baumann*, *Madame C. Wood*, and *Madame Ducher*. In the same section (twelve blooms of any one light Rose) Messrs. James Dickson took first prize for a very fine box of *Capitaine Christy*, run very closely by the Rev. L. Garnett with beautiful blooms of *Baronne de Rothschild*. The same firm showed (not for competition) a grand box of twelve *Marie Baumann*.

There were two classes (twenty-four and eighteen single blooms) in Section B, open to all amateurs, and the competition in both was very close. In twenty-fours Mr. C. J. Day was first, closely pressed by Mr. T. B. Hall and the Rev. L. Garnett, while Miss Massey was highly commended. In eighteens the Rev. L. Garnett was first, Mr. T. B. Hall second, Mr. Day third, with Miss Massey placed as before. Mr. Day's best blooms were *La France*, *Louisa Wood*, *Victor Verdier*, *Dupuy Jamain*, *François Michelin*, and *Julia Touvais*. Mr. Hall showed good examples of *Marquise de Castellane*, *A. K. Williams*, *Louis Van Houtte*, *Marie Van Houtte*, *Général Jacqueminot*, and *Eugénie Verdier*. Mr. Garnett had *Baronne de Rothschild*, *Prince Camille de Rohan*, *Etienne Levet*, *Madame Willermoz*, *Annie Laxton*, and *Magna Charta*. Miss Massey showed a good bloom of *Marie Louise Pernet*. Section C, twelve and six single blooms, was intended for the smaller growers, exhibitors in Section B being excluded. The competition in this section was good, and the Roses shown very creditable, though of course inferior to those in Section B, which were indeed the best in the Show. For twelve single blooms Mr. W. E. Hall won the first prize; Miss Humberston the

second, and Canon Blomfield third. For six blooms the first prize went to Mr. F. N. Garnett, Mr. Hutchings being second, and Canon Blomfield third. Some very good blooms were shown by Mr. J. A. Hodgson in this section, which would undoubtedly have carried off the first prize, but owing to an informality of entry they were excluded from competition. Mr. Hodgson's Roses were as good as anything in the Show. There were several local classes, but the competition was disappointing and the Roses moderate. In Section E, for Tea Roses, Mr. T. B. Hall easily won first prize with twelve beautiful blooms, Mr. Day being second. The competitors in this class being excluded from the next (for six blooms), the Rev. L. Garnett here was successful, and Mr. W. E. Hall won the second prize.

Perhaps the most attractive feature in the Show was a class for hardy cut flowers, not more than twenty-four varieties. The Rev. L. Garnett won the first prize with a beautiful stand of twenty-four varieties, comprising *Spiraea palmata*, *Delphinium Cantab.*, and *Pompon Brilliant*, *Geranium pratense fl.-pl.*, *Phlox Lord Rosslyn*, *Lilium croceum*, *Campanula grandis* and *turbinata*, *Gladiolus Colvilli*, *The Bride*, *English Iris*, *Mimulus cupreus Brilliant*, *Corn Marigold*, *Lychnis chalcidonica*, &c. Mr. F. N. Garnett was a good second with *Phlox* Mr. Hunter, *Spiraea Aruncus*, *Alstromeria*, *Delphinium formosum* Mr. Jas. Helme and *ranunculoides*, *Centaurea montana*, *Lychnis Haageana*, &c. Mr. Townsend Ince was third with a neat collection, and Miss Currie highly commended. This part of the Show was judged by the Rev. C. Wolley Dod of Edge Hall, Malpas, who showed (not for competition) an extensive and most interesting collection of herbaceous flowers, chief among them being a most magnificent spike of *Lilium giganteum*, thicker than a man's wrist, bearing twenty-two fully developed flowers. This had been grown in the open ground, and judging from the stump which we saw two days later must have stood 9 feet high or more. Other showy flowers in his collection were *Cistus crispus*, *Oenothera Youngi*, *Geranium armenium*, *Silene armeria*, *Francoa rupestris*, *Centaurea macrocephala* (greatly admired), *Rudbeckia californica*, *Phlox Lady Napier* (a beautiful pure white with very large pips), *Armeria cephalotes*, *Cyananthus lobatus*, *Ononis rotundifolia*, *Orchis foliosa*, *Inula hirta* and *glandulosa*, *Lychnis dioica fl.-pl.*, *Lilium pardalinum*, &c. There is no doubt that these collections of hardy flowers, duly labelled and arranged for effect, were greatly admired by the visitors, and added much to the interest of the Show. Some very good Rose bouquets were exhibited, the prizes being adjudged first to Mr. G. O. Day and second to Mr. C. V. Lace, Miss Thompson's being highly commended. Special prizes also were offered for a vase or epergne dressed with flowers, the first prize being awarded to Miss Garnett, second to Mr. Lace, while Miss Yorke and Miss Theo. Lace were highly commended. The general verdict upon the Roses was that they were superior to those shown last year, and considering the very unfavourable weather most creditable to the exhibitors. The arrangements made by the Secretaries, Messrs. C. J. Day and S. Earlam, were most complete, and we think that both exhibitors and visitors had reason to be well satisfied with their reception at Christleton, and are likely to come again.

We must not omit to notice a collection of decorative plants sent by the President of the Rose Society, Arthur Potts, Esq., of Hoole Hall. Chief among these were *Sarracenia Chelsonii* and *flava major*, *Dracæna Seaforthii*, *Croton Warreni* and *Queen Victoria*, *Nepenthes Hookerii*, *Begonias* in variety, with beautiful Peaches and Tomatoes.



A KENTISH correspondent writes as follows relative to RAIN AND INSECTS:—"The recent rains have not done so much good as I hoped they would in the way of diminishing the numbers of aphides and some other species that usually dislike rain. During the calm and peculiarly dull weather of last week there were some curious migrations of aphides, followed by a considerable deposition of honeydew. I do not see many ants this season."

— MR. RIVERS has sent us from Sawbridgeworth a splendid specimen of the SEA EAGLE PEACH, a variety which is not extensively known nor generally cultivated. The fruit is very large, 11 inches in circumference, and 3½ inches in diameter; round, with a wide suture, which extends all round the fruit, and terminated by a large prominent nipple; skin with a very delicate down, pale yellow, tinged and mottled and speckled more or less with rose colour, and with a mottled thin cheek on the side next the sun; stalk very short, embedded all its length in a deep cavity; flesh very delicate and juicy, deep red at the stone, the colour extending in rays well into the substance of

the flesh, which is quite melting, sweet, and with a rich flavour; leaves with round glands. The fruit sent to us weighed $11\frac{1}{2}$ ozs., and we presume it was grown on a tree in a pot. Grown outdoors it usually ripens in September.

— MAJOR-GENERAL MILMAN, in alluding to our reply to a correspondent last week on the DECAY OF SPRUCE FIRS, states that on his estate in Berkshire, and in the neighbourhood generally, there is scarcely a Spruce, either large or small, that is not afflicted with a sort of blight, which is getting worse daily. The vitality of the trees, with the exception of a green tip at the extremity of the branches, appears gone; the leaves turn brown and fall. Some very large trees here have hardly a leaf remaining. This occurs not only on the sandy and peaty soil of this place, but also on the clay at an estate some miles distant.

— RELATIVE to the new GOLDEN QUEEN MIGNONETTE that was recently certificated by the Floral Committee of the Royal Horticultural Society, we are requested to state that "it was sent by Messrs. Benary, Carter & Co., E. G. Henderson and Sons, and James Veitch & Sons." The official report that was sent to us last week contained none of these names, and Messrs. Carters' name was inserted because a certificate of the variety bearing their name alone came under our notice, hence we concluded the name had been accidentally omitted from the report.

— IN allusion to our reply to a correspondent last week, "S. W." highly recommends FUNKIA SPATHULATA ALBA, which he says is now producing freely spikes of small blush white flowers, which are of the greatest value for vase-decoration, and have also quite a pretty effect on the plants in the border. The plant was obtained from Mr. Ware of Tottenham, and its spikes of flowers are not unlike the white form of Dictamnus Fraxinella. Our correspondent thinks this Funkia should be more extensively grown, and says that the spikes which are a foot high require no sticks to support them.

— A CORRESPONDENT ("J. W. R.") writes to us as follows with reference to CLAY'S FERTILISER AND DAHLIAS:—"Having planted several single Dahlias in my garden where slugs abound, I spread around the plants a small portion of the above fertiliser. This has not only prevented the plants being eaten by the voracious nocturnal pests, but has had such a remarkable effect in accelerating the growth of the Dahlias that the circumstance should be known. It changed the foliage from a pale to a deep, almost black, green in a few days, and the growth has been so rapid that some of the plants are flowering freely. The powder is sprinkled round the plants so as to fairly cover the soil, and as long as it remains there it forms an effective barrier against slugs. When the rain washes it in more is spread round as often as is needed, and thus the slugs are completely baffled, while the plants are as signally benefited. I consider this manure a boon in my suburban garden, and it forms undoubtedly a valuable dressing for flower borders and vegetable ground where ordinary farm-yard manure is difficult to obtain."

— REFERRING to the PEAS CERTIFICATED AT CHISWICK on the 7th inst. and enumerated on page 39 last week, a correspondent writes to us complainingly in the following words:—"Were you not able to give a better description of them? You state nothing definite about their height, character, nor period of use. Surely the date of sowing and of gathering, with the height the varieties attained, might have been given, the same as Messrs. Veitch appear to have done with a collection that they exhibited on the 11th inst., and referred to in the same issue of your paper. It is very seldom I am disappointed with your descriptions of new things, but in this instance you can scarcely regard my complaint as ill-founded." The report of the Committee meetings that were

held at Chiswick on the 7th inst. was supplied to us and our contemporaries officially, and we did not curtail it in any way before publication.

— MR. MUIR has sent us from Margam a sample of CUL-VERWELL'S GIANT MARROW PEA, which he regards as the finest variety in cultivation. We have never seen finer Peas than those submitted to us. The pods are of great size, 7 inches long and $1\frac{1}{4}$ inch wide, curved, dark green in colour, and crowded with fine peas. Mr. Muir states the variety is a great cropper, and the produce is of the first quality when cooked. He thus esteems it as one of the most useful Peas in cultivation as well as one of the best for purposes of exhibition that can be grown.

— MR. THOMAS, late gardener to Sir Robert Peel, Bart., Drayton Manor, Tamworth, has been appointed gardener to John Corbett, Esq., M.P., Impney Hall, near Droitwich. Mr. Thomas enters on his duties on the 22nd inst.

— THE following HYBRID ORCHIDS are now flowering in Messrs. Veitch's collection at Chelsea—Cypripediums Morganæ, pyenoptrum, selligerum, ealanthum, porphyrospilum, superciliare, grande, euryandrum, Sedeni, marmorophyllum, cœnanthum, albo-purpureum, and Dominii; Dendrobium rhodostoma; Lælias calistoglossa and Philbrickiana; Zygopetalum Sedeni, and Masdevallia Chelsoni.

— THE HORTICULTURAL EXHIBITION AND MARKET, which is to open in the Agricultural Hall, London, on the 24th inst. and closes on August 5th, promises to be both extensive and diversified. It is expected to comprise every requisite in connection with the garden, the following exhibits being enumerated in the prospectus before us:—Conservatories, greenhouses, frames, handlights, boilers, heating apparatus by water and otherwise, garden statuary and fountains, Fern cases, aquaria, window boxes, vases, flower pots, fancy tiles, rockeries, cascades and waterfalls; summer houses, garden seats and furniture of all kinds; lawn-mowers, verge-cutters, garden hose, engines, water barrows, watering cans, gardening tools, wire netting, guards, Rose stakes, dried flowers and grasses, artificial plants, flowers, fruit, seeds, bulbs, roots, plants, cut bloom, manures, insect-destroyers, &c. Thus an excellent opportunity will be afforded for visitors, and they will doubtless be numerous, of comparing the merits of the different articles exhibited, and selecting those best adapted to their purposes. The Exhibition, as may be seen by our advertising columns, will be held under very distinguished patronage.

— THE correspondent of an American paper writes in glowing terms on ROSES AT NEW ORLEANS. A Lamarque Rose is instanced as "growing 80 feet long. The stem is 8 inches through in the thickest part. It was planted seventeen or eighteen years ago. It is twined around a verandah, and its gorgeous clusters of cream-tinted Roses are splendid to behold. Maréchal Niel Roses run wild. The blossoms grow in gorgeous clusters of half a dozen or more, and the flowers are so large that they would more than cover the top of a large-sized coffee cup. The Rose the French inhabitants of New Orleans are fondest of for decoration is called the 'Gold of Ophir.' Northern florists have it, but it is not common. The bud is especially prized for its beauty. It is a smallish Rose, of a very pale pink, shading on towards the heart in a deep rich good colour. Faint streaks of crimson touch the outer petals. It is one of the loveliest Roses I ever saw."

STRAWBERRIES—MODES OF CULTURE—MISTAKES.

VERY light sandy soils, and especially if in a district where the annual rainfall does not exceed 24 inches, are perhaps the most difficult of all on which to grow Strawberries; and next to them, and almost as bad, are hungry clays where the rainfall averages 50 inches a year. An important matter in connection with soils of the former nature is to let them alone as much as

possible, and to apply all the manure near to and on the surface. To bury the manure deeply in sandy soils is to waste it; even when near the surface its virtues are washed away far too quickly, and to place all the dung a foot or more deep is practically manuring the drains, not the Strawberries. If plentiful a layer may be spread at that depth and be trodden firmly, but the bulk should be placed above the roots.

The less sandy land is worked the better, and it cannot well be too firm. Autumn and winter digging is a mistake, and late spring and summer digging when the weather is dry is a greater mistake still. Such soil should only be dug when it is moist, and it should be made as firm as possible as soon as it is dry enough to be trampled on, covering it immediately afterwards with manure if possible, or any other mulching, to prevent the sun parching the surface. Salt is a valuable application to soil of this nature, and may with great advantage be sprinkled on the surface at the rate of an ounce per square yard in the spring, repeating the dressing three or four times during the summer between the rows of Strawberries.

Close planting I have found of decided advantage on soils of the nature indicated, and it is doubtful if such good results can be had by any other method than inserting the plants a foot apart all ways. If strong plants are inserted in July their foliage will soon shade the ground, which is an important point, and a fine crop of fruit may be gathered within a year from planting. It is of the greatest possible advantage, too—how great no one knows who has not tried it—to place a handful or two of fresh soil round the roots when planting. Charred refuse of any kind, with decayed vegetable matter which has been saturated with liquid manure, and half a peck of bone meal mixed with each barrowful of compost, gives the plants an excellent start, and a good start is more than half the battle in growing Strawberries on poor or ungenial soil. It is very bad practice to plant with the dibber, crushing all the roots together; they should be spread out thinly their full length.

After the first gathering either every alternate row can be removed or every fourth row. By the latter plan a series of beds are formed in which the plants are allowed to grow in a mass, the runners not being removed from the plants. If the weather is very hot and dry in July I have found this plan the better of the two. It may be called a lazy method, perhaps, but a mere term of that kind can be endured if we have plenty of Strawberries.

When alternate rows are removed I have never seen the advantage of taking out alternate plants from the rows remaining in soil of the kind in question. In good Strawberry-growing land thinning-out becomes quite another matter where the plants have to continue bearing for four or five years, but in poor, light, or very sandy soil it is seldom profitable to allow the plants to remain a third year. Two good, sometimes heavy crops, can be had, but the third is almost invariably light and not infrequently worthless. The system above alluded to of occupying the whole surface of soils of a light and dry nature with Strawberries is, in my experience, and I have tried other methods carefully, decidedly preferable to planting in lines 2 or 3 feet apart, and occupying the space between the rows with Lettuces or other moisture-extracting crops.

It is scarcely necessary to dwell at any length on the cultivation of Strawberries in soils and districts naturally favourable to their growth. Those who cannot produce good crops in rather strong yet free-working fertile soil have missed their proper occupation. It may be stated, however, that in such soil it is a good plan to plant 18 inches apart in rows the same distance asunder, and after the fruit crop to remove every alternate row, and afterwards if needed every alternate plant in the rows. With good after culture plants thus having space to develop yield prodigious crops—sometimes for six years; in fact I have known highly productive Strawberry beds ten years old.

In a north-western county noted for heavy rainfall it was once my misfortune to be expected to grow Strawberries on a strong and almost unworkable soil. The garden men said it was no use trying as the plants always "went off," and judging by the miserable beds there was reason for that opinion. It was clear the orthodox method of planting was of no use here, and ridges were formed 2½ feet asunder, and a row planted on each ridge, soot being liberally mixed with the soil. The plants grew well, and a good crop was produced, yet the method was a mistake. By the continuous rains the soil was washed away, leaving the rhizomatous stems bare, and the roots which issue from those stems could not take possession of the soil; the plants consequently lost vigour, and a severe winter following killed half of them. But no one ought to fail without gaining valuable experience, and in this case the way to success was pretty clearly indicated.

The ground was next prepared as if preparing for Celery—that is to say, ridges were formed 3 feet wide with trenches between them. The ridges were dressed liberally with long manure, the straw not being half decayed, and soot in abundance. This is the best application that I am acquainted with for rendering strong soil friable. The manure was so littery, contained so much straw, that it was not easy to put out of sight, but it was of real benefit, as it always is in soils of a clayey nature. Two rows of Strawberries were planted zigzag fashion on each ridge, the roots being surrounded with light, rich, yet gritty compost. Better crops of Strawberries I seldom had than from those ridges, and the plants continued bearing well for four years.

I am not enamoured of the practice of planting Lettuces, Cabbages, &c., between rows of Strawberries. If a crop must be stolen I prefer such as winter Onions and Radishes. I once adopted a precisely opposite method with good results. Having observed how well winter Onions grew amongst Strawberries, it appeared self-evident that Strawberries would grow amongst spring Onions. Rooted runners were planted a foot asunder in rows 3 feet apart between the Onions in July and well watered. The Onions for a week or two appeared to provide agreeable shade to the young Strawberry plants, and as these required more light and air the Onions were just ready for having their growths bent down, these of course being laid from the Strawberries. In due time the Onions were cleared off the ground and spread on asphalt walk to dry; the ground between the Strawberries was hoed and then mulched with manure, and a very productive Strawberry bed was the result. The soil was light rather than strong, and the weather was showery when the Strawberries were planted. Those who have Strawberry runners ready for planting and no vacant ground at disposal might try the same method. There is not much to lose, and something useful might be gained by an experiment, which in the case mentioned was certainly *not* a "mistake."

I wish correspondents would state what they consider the best early Strawberry. I have not one that satisfies me. Black Prince is too small, and Vicomtesse Héricart de Thury is too late. Particulars relative to really early sorts would, I think, be acceptable to many readers of the Journal.—A NORTHERN GARDENER.

MANURING POTATOES.

WHETHER to put the manure over the Potatoes or the Potatoes over the manure seems to puzzle some of your correspondents. Generally speaking it is much better to do neither, but to surround the newly planted sets with clean wholesome soil, and to have the manure through the body of the soil. When this is done the crop turns out cleaner and often of better quality. In dry seasons the moist manure attracts the worms, the worms scarify the skins of the Potatoes, and scabbing results. No one wants scabbed Potatoes, because there is a loss in preparing such for table, and what should be the driest and mealiest part of the tuber—the outside, is rendered watery and waxy.

Even should worms not attack the tubers through the manure being applied in the drills, there is apt to be a rush into shaws, which exhaust the manure, leaving only the residue for swelling up the crops. When the manure is diffused through the soil the first growth may not be so strong, but when the tubers swell there is something to fall back on, and better crops of tubers, with less crops of shaws, are the result. This is not theory, it is experience.

There is no rule in gardening absolute, and neither is this. While the above truth may be generally adhered to with advantage, it may also be sometimes ignored. Very early crops come more quickly when from first to last their roots can run in manure not too rich. The same may be said of weakly varieties. In such cases it will be found advantageous to turn the sets upside down. By this means all the advantages of putting the manure over the sets, without the disadvantage of placing a body which is a non-conductor of heat between the sets and the sun, is gained. At present we are digging Potatoes, part of which were planted eyes up and part with eyes down, and the difference in the crop is considerable. The variety is Beauty of Hebron, which, being a weak grower but very early, requires treatment exactly opposite to what strong-growing late kinds require.—S.

ODONTOGLOSSUMS.

PERHAPS no genus of Orchids has so rapidly grown in public favour as those now to be considered, and judging by the large importations that are being continually announced the demand is still increasing. This is not surprising, for Orchids that will succeed in a cool temperature possess much to recommend them to notice, as they can be grown at so much less expense than their

relatives from warmer regions, and their beautiful flowers can be viewed without enduring the oppressively hot and moist atmosphere needed by natives of tropical climates. The majority, too, are of comparatively easy cultivation, flowering freely and regularly—recommendations of inestimable value. Amongst these cool-house Orchids *Odontoglossums* hold an important position numerically, and for the beauty distinguishing the flowers of many species, and in most establishments where Orchids are especially encouraged, the *Odontoglossum* house is by no means the least interesting or least attractive. Indeed, in many gardens where the tropical members of the family receive little attention it is becoming quite common to find a small and probably

unpretentious house devoted to the *Odontoglossums* and some of the other Orchids that thrive in their company. It is true we have not the brilliant colours that mark the occupants of the South American and East Indian houses, but it can safely be asserted that none of those excel their less gaudy relatives in delicacy of hues, semi-transparent or wax-like substance, or graceful forms. For bouquets or general decorative purposes the flowers of some of the *Odontoglossums* are unrivalled both in beauty and endurance, and foremost amongst these must be named that superb Orchid

O. Alexandræ, which well deserves first attention in noting the best forms of the genus. It may be remembered by some readers



Fig. 13.—*ODONTOGLOSSUM ROSSI* VAR.

that this is one of the Royal Horticultural Society's introductions through their collector Mr. Weir, who found it in the forests of Bogota at an elevation of about 9000 feet above sea level, and first sent plants to this country about 1864. In the following year at the November meeting of the Society specimens were shown and much admired, though plants of *O. Bluntii* shown at the same time were considered superior. It is rather interesting that Mr. Weir also claimed to have found the last-named, having supplied Mr. Blunt with plants from his collection. Unfortunately, although the name of *O. Alexandræ* is still the most generally accepted one in gardens, the species is considered to be the same as *O. crispum*, which was known some time previously. However, whatever name it bears, the plant is undoubtedly a beautiful one, especially some of the finer varieties that have been obtained in recent years. A flower of one of these from Mr. Warner's superb

collection at Chelmsford is shown in the woodcut (fig. 12, page 55), and well indicates the fine form, the breadth of sepals and petals, which render several varieties so remarkable. Some forms have the flowers pure white with very few spots, and others have the spots, blotches, and bars of reddish-brown or crimson very large and prominent. Several of the most distinct that have been imported have received names—as *Trianae*, one of the most beautiful; *guttatum*, *Warneri*, and others—all possessing considerable attractions, and some are much larger than the example figured.

O. Rossi.—Very different from the above, yet beautiful in no ordinary degree, is *O. Rossi*, a great favourite with all Orchid growers, and one of the most useful of the dwarf *Odontoglossums*. Grown upon blocks and suspended from the roof of the cool house it produces its flowers with great freedom, and renders the house gay for several weeks. Some growers, however, prefer

it in pots or pans, as it is found that plants upon blocks often become exhausted in a few years. The block system is much more pleasing in appearance than the other, but perhaps the best plan is to have some specimens grown in each way.

O. Rossi is a Mexican species of dwarf habit, and was introduced to England by Mr. Barker, who obtained it from his collector Mr. Ross, after whom it is named. The flowers are of moderate size, the sepals white or greenish with brown or purplish spots; the petals very much broader, frequently having the margin fringed, pure white with a few rich purple spots at the base. The lip is large, often beautifully fringed and pure white, contrasting very strikingly with the darker sepals. The flowers are borne singly or in pairs on short scapes which arise from the base of the small pseudobulbs. The variety *majus* greatly surpasses the old form in the size and rich colouring of the flowers, and is very similar to the variety represented in the engraving (fig. 13), which portrays one of those in the Trinity College Botanic Garden, Dublin. A very handsome unnamed variety is also grown in Mr. Dorman's collection at Sydenham, which is even superior to *majus* in the richness of the colouring. When well grown O. Rossi and its varieties are some of the most charming Orchids in cultivation, and they may be easily obtained in satisfactory condition under similar cool treatment to that afforded O. *Alexandrae* or other species, except as was previously mentioned, they should be suspended from the roof either in pans or on blocks.—L. C.

(To be continued.)

HAWKHURST HORTICULTURAL SOCIETY:

It is very pleasing to note the progress made in horticulture in the Hawkhurst district. Not only is this very apparent among gardeners and amateurs, but the cottagers, which the Society greatly encourage, are also giving abundant proofs of improvement. At the first few shows it was found necessary to induce well-known exhibitors to bring their specimen plants from a great distance. Now, however, the Committee is in a position to arrange one of the best exhibitions in Kent without any open classes. The leading inhabitants of the district and at Hawkhurst, where the Exhibition is invariably held, no difficulty is experienced in securing suitable and convenient grounds for the purpose. On this occasion the picturesque grounds of H. Maynard, Esq., Oakfield House, were chosen, and the selection was a wise one. The site being elevated dried rapidly, and to this and the almost unexpected fine day may be partly attributed the attendance of so many appreciative visitors.

There were six exhibitors of six flowering stove and greenhouse plants, all showing creditably. To Mr. F. Hodgkins, gardener to A. Oakes, Esq., Sandhurst, was awarded the first prize, his group comprising a beautifully flowered *Bougainvillea glabra*, a fine and brightly flowered *Kalosanthes coccinea*, creditable examples of *Allamanda Hendersoni* and *Statice profusa*, and rather poor plants of *Rhynchosperrum jasminoides* and *Imantophyllum miniatum*. Mr. F. Dean, gardener to W. F. Neve, Esq., Cranbrook, followed very closely with a more even group, among which were capitally flowered plants of *Vinca oculata* and *Clerodendron Balfourianum*. To Mr. C. Nicholls, gardener to C. A. Fisher, Esq., Hawkhurst, was awarded the third prize for an excellent group, which included a well-grown *Erica ampullacea Williamsi*. Mr. G. Rummery, gardener to Sir E. Hardinge, Bart., Hawkhurst, was worthily awarded the fourth prize. The best six fine-foliage plants were staged by Mr. H. Manktellow, gardener to Dr. Harris, Northiam, these consisting of a grand *Acalypha* highly coloured, a good *Phormium tenax variegata*, *Cycas revoluta*, *Maranta zebrina*, *Croton variegatus*, and *C. irregularis*. Mr. J. Gilmour, gardener to the Right Hon. G. J. Goschen, Seacox Heath, Hawkhurst, was a good second, his group including well-coloured examples of *Acalypha musaica*, *Aspidistra lurida variegata*, and a good specimen of *Seaforthia elegans*. Mr. G. Nicholls was placed third in this class.

Mr. F. Dean easily secured the first prize for six Ferns, these comprising well-grown specimens of *Gymnogramma chrysophylla*, *Adiantum farleyense*, *A. cuneatum*, *Pteris umbrosa*, *Phlebodium aurum*, and *Platynerium alcinorne*. In Mr. Gilmour's praiseworthy second-prize group were good plants of *Davallia Mooreana*, *Adiantum gracillimum*, and *Lygodium scandens*. Mr. Hodgkins was awarded the third prize, his most noteworthy plant being *Davallia bullata*. Mr. W. Tanner, gardener to H. Maynard, Esq., staged the best four flowering plants, among these being good specimens of *Kalosanthes coccinea* and *Vinca rosca*. Mr. J. Vaughan, gardener to Mrs. Slaughter, Sandhurst, was a creditable second.

The Colcuses were quite a feature in the Show, and six beautiful even pyramids were staged by Mr. H. East, gardener to T. Moilliet, Esq., Hawkhurst. Among these the most conspicuous were Harry Veitch, Lovely, and Kentish Fire. Mr. C. Nicholls followed with larger but less symmetrical plants, and Mr. Manktellow was a good third. Mr. Gilmour easily secured the premier award for four *Caladiums*, these consisting of good examples of *Bicolor splendens*, *Chantini*, *Louis Duplessis*, and *Bellemeyi*. Messrs. Hodgkins and Nicholls took the remaining prizes in the order named.

The first-prize group of Fuchsias staged by Mr. Nicholls were

particularly fine. These included grand pyramids of Lucy Mills, Improvement, Lustre, Avalanche, and Wave of Life; Mr. Tanner and Mr. Rummery also staged good Fuchsias. Mr. Nicholls had the best *Achimenes*, these comprising fine pans of *Grandiflora*, Sir Treherne Thomas, Ambrose Verschaffelt, and *Longiflora major*; Mr. Tanner was a good second. The best Balsams were staged by Mr. East, Messrs. Gilmour and Barnes following in the order named. Mr. Tanner had good *Gloxinias*, and was awarded the first prize, being followed by Messrs. Rummery and Hodgkins; Messrs. Tanner and Hodgkins were also successful with *Zonal Pelargoniums*.

For a miscellaneous group of plants Mr. Hodgkins was awarded the first prize, principally on account of the Orchids included. Of these the best were the small pieces of *Cattleya Mossiae* and *Lælia purpurea*. It was, however, a moot point whether the group staged by Mr. Nicholls was not more deserving of the premier award, this including two good half specimen *Ericas* and other choice plants. The best single specimen plant, a well-flowered example of *Erica ferruginea major*, was staged by Mr. Gilmour.

Several good stands of cut flowers were staged, the prizes going in one class to Messrs. Gilmour, Nicholls, and Manktellow; and in another to Messrs. Vaughan and A. Butler, gardener to D. N. Olney, Esq., Robertsbridge, in the order named in each instance. Roses were staged creditably by Captain Swinney, Hawkhurst; and Messrs. Hodgkins, Barnes, and Butler. In the bouquet class the Judges preferred a closely packed specimen, exhibited by Mr. Dean, to one lighter and more elegant shown by Mr. Gilmour.

Mr. L. Barnes, gardener to Lady Herschell, Hawkhurst, easily secured the premier award for a collection of fruit, in which were good dishes of Golden Champion and Mrs. Pince's Muscat Grapes, the latter thoroughly ripe and well coloured, Melons, Apricots, and other good hardy fruits. Good collections were also well shown by Mr. Tanner and others, the hardy fruits in each instance being particularly good. Mr. Barnes' first-prize bunches of Buckland Sweet-water in the class for any white Grapes were most creditable, and the same may be said of the Black Hamburg in the corresponding class for black varieties, staged by Mr. Reeks, gardener to R. W. Smith, Esq., Wadhurst. Mr. Barnes was second in this class with well-coloured Mrs. Pince. Mr. Rummery was first in the class for scarlet-fleshed Melons with an excellent fruit of Blenheim Orange; Mr. Gilmour was a close second. Green-fleshed varieties were well shown. Mr. Barnes gained an extra prize for a well-fruited pot Vine, the variety being Duke of Buccleuch.

The collections of vegetables both by professional and amateur gardeners are always particularly good at Hawkhurst, and Mr. Gilmour in the professional class was awarded the first prize for clean well-selected specimens, among which were fine dishes of Glamorgan Tomatoes, Ashleaf Kidney Potatoes, Beetroot, and Telephone Peas. Mr. Barnes followed closely with fine White Tripoli Onions, Telegraph Peas, and Porter's Excelsior Potatoes among others; Mr. G. Rummery was worthily awarded the third prize. In the smaller class Messrs. A. Butler, R. Titley, gardener to J. Thompson, Esq., and J. Willard were the prizewinners.

The ladies' class for vases for table decoration was well filled, and there were several elegant and tasteful arrangements. The Judges, however, gave the preference to three very stiff and formal arrangements in which moss and scarlet *Pelargoniums* predominated. Mrs. Cook, Mrs. Pridgeon, Mrs. Cooper, and Mrs. Gilmour were also successful with their pleasing arrangements, those by the latter being preferred by many. Several very fine stands of Roses were presented by Messrs. G. Bunyard & Co. of Maidstone, these comprising among others excellent blooms of A. K. Williams, Horace Vernet, Dr. André, Sultan of Zanzibar, Madame Eugénie Verdier, A. Colomb, Etienne Levet, Hippolyte Jamain, Sir G. Wolseley, and Countess of Rosebery, Hybrid Perpetuals; and of Teas, Jean Ducher, Rubens, Souvenir d'un Ami, Madame Bravy, and Madame Lambard. Mr. Potten of the Camden Nursery, Sissinghurst, staged a well-selected group of tri-color, bronze, single and double flowering *Pelargoniums*, *Coleuses* and other plants. Mr. Martin, nurseryman, Hawkhurst, also staged a pretty group of serviceable plants.

The amateurs of Hawkhurst and district made a grand display of flowers, fruits, and vegetables, while the cottagers, from the various parishes comprised, brought an extraordinary large quantity of good vegetables and fruits in season. The whole system and arrangements reflect the greatest credit on the President Mr. Cook, the Treasurer Mr. Reeves, and the Committee generally, and judging from the support these receive from the leading inhabitants of the district, the Hawkhurst Society will long continue to carry out its good work.

EARLY TURNIPS.

THE thanks of your readers are due to Mr. Luekhurst for publishing the results of his experiments with early Turnips; but it may not be out of place to point out that Turnips run to seed much less readily when very liberally treated, especially with manures which are highly phosphatic. Let anyone mark the difference between Turnips sown on ground the surface of which has been forked full of manure, and those sown on ground dug in the ordinary way, and a very great difference will be seen. Vigorous growth from the first tends to retard the flowering season of every vegetable from Turnips to Celery, but perhaps

more in the case of these plants than any others. Certain it is that under the one system a fair crop of Turnips may be gathered before they "bolt," while, under the other, seed stems will often form before the roots are of any use.

Perhaps there is not any other manure better fitted for producing fine crops of very early Turnips than nightsoil, or rather ordinary manure saturated with nightsoil. Manure from the poultry yard is also very good, and so is guano. As has been said, the best way is to fork the manure into the surface; every drop of rain will cause it to go down. This way of applying manure is perhaps the best for everything, and few greater mistakes are made than digging manure deep into the earth and throwing poor soil to the surface; no pulverising with frost, fork, or hoe will turn such into a soil that will feed delicate seedlings abundantly. When plants are nursed into strength from the very first they are not much inclined to "run to seed" or succumb to insect attacks.

Later crops of Turnips grow finest on poor soil. On rich soil they grow coarse, with strong taproots and immense tops. On poor soil the taproots are like mouse tails, the leaves grow less coarse, and the "bulbs" are better shaped, finer, and firmer. When poor soil is recommended it is, of course, meant that the land shall be rich enough to maintain a steady growth. In most gardens the soil is rich enough to produce fine crops of late Turnips without manure. In the case of very early plants seed stems rather than bulbs are the result of sowing on poor soil, and a very rich soil is a cure for this. It is thus seen that for the very same crop conditions diametrically opposite have to be afforded at different seasons in order to secure the best results.—SINGLE-HANDED.

BEETLES v. STRAWBERRIES.

OUR Strawberry beds were very fine and promising this spring, with abundance of flowers, which set well. Early in May, however, my gardener informed me that he had discovered in the beds some of the beetles which two years before had made such havoc among the Strawberries. We tried all means to arrest the plague, but nothing seemed of any avail. The creatures came out of the ground from the depth of sometimes 3 or 4 inches, swarmed in the roots of the plants, and soon increased by thousands. They only came out at night, like the blackbeetles that swarm in some kitchens. In vain my gardener and his men went out night after night slaughtering the insects by thousands; the conquering army could not be defeated. The Strawberries have been almost entirely devoured, and the fine crop that promised so well has entirely disappeared. I enclose some of the Strawberries that you may see the way in which the juices have been sucked out of the fruit. When I wrote to you on the subject two years ago your answer implied that you considered the beetles had only destroyed some other enemy of the Strawberry—the emmets or slugs. This, however, is certainly not the case. There is not the least doubt that the beetles attack only the Strawberries. Last season we had hardly any of them, owing, I suppose, to the severity of the previous winter, and the result was a fine crop of fruit. A curious fact is, that after devastating the Strawberries the beetles do not attack any other fruit or vegetables in the garden. They seem to subside; and though they are still found, the great army of them disappears. I do not find that any of our neighbours suffer from the attacks of these beetles. Our soil is light and gravelly, hot, dry, and flinty. We are on the edge of the chalk of the downs. The beetle is well known to the natives, and is called by them "the Black Bob." During the ten years that we have resided at this place this is the second outbreak we have had of this plague. I shall be greatly obliged if you can suggest a remedy. Would dressing the ground with seaweed be likely to have a good effect? I enclose some of the dead beetles for your inspection.—E. D.

[We publish the above letter as it refers to a circumstance which, so far as we know, is a very unusual occurrence. We have consulted a skilled entomologist on the subject, who states the insects belong to the tribe of ground beetles, sometimes called "Gardeners," from their utility in gardens, this particular species being one of the Carabi. There is every reason to suppose such a circumstance as their attacking fruit is of excessive rarity, and he fails to find any record of such a thing, their wonted food being other living creatures. Still there is no accounting for freaks amongst beings two, four, or six-legged, and possibly owing to their great numbers the beetles have been unable to obtain the requisite animal nutriment. These Carabi occasionally show themselves in swarms in marshes near the sea. What could have led to the establishment of this colony of them in a garden could only be conjectured by a study of the locality and its surroundings. We cannot conceive that a dressing of seaweed would be of any substantial benefit in eradicating the pests. It will be well to make

a plantation of Strawberries in another part of the garden, destroying the present bed and dressing the ground with gas lime. If any of our correspondents have had experience of the kind indicated, and can submit a method for extirpating the beetles, we shall be glad to hear from them on the subject.]

WIRRAL ROSE SOCIETY.

THIS Society's Exhibition was held on Saturday, the 15th inst., in the Archery Grounds, Birkenhead Park, and is the third that has taken place, each having been a great success as far as the exhibits have been concerned; but unfortunately the weather has been much against their financial success. The opening day has generally been wet, which was again the case on the present occasion, but fortunately the weather cleared, and the sun shone brightly before the Exhibition opened for the public. The blooms were more numerous than last year, and of good quality throughout, in fact slightly superior to those staged at Manchester on the previous day. The most marked improvement this year was observed amongst the open and local amateurs' classes. It is objectionable, as has been noticed on previous occasions, that none of the prize cards gave either gardeners' names or the addresses of the exhibitors.

In the open class for seventy-two blooms, distinct, Messrs. G. Paul and Son, Cheshunt, took the lead, followed by Messrs. Cranston and Co., Hereford. These two exhibits gave the Judges some trouble in deciding which was worthy of the premier award, but at last the matter was settled in favour of the Cheshunt collection. Messrs. James Dickson & Sons, Chester, were awarded the remaining prize for a very worthy collection. The Cheshunt boxes contained good flowers of Marie Baumann, Ferdinand de Lesseps, Marie Finger (very fine), Madame Ducher, Ferdinand Chaffolte, Senateur Vaisse, Mons. E. Y. Teas, Niphotos (large and good), Capitaine Christy, Beauty of Waltham, Penelope Mayo, Madame Vidot, Louis Doré (bright), Countess of Rosebery, and Marie Rady—all being bright and fresh. Messrs. Cranston & Co. had superior light flowers and Teas—Princess Beatrice, Baronne de Rothschild, Mdlle. Eugénie Verdier, La France, Capitaine Christy, Madame Gabriel Luizet, Duke of Edinburgh, and Pride of Waltham. The third collection showed very much the effects of the weather amongst the light flowers, but such blooms as John Hopper, Beauty of Waltham, Sir G. Wolseley, and Comtesse d'Oxford were superb. For thirty-six, three blooms of each, there were only two exhibitors, Messrs. Paul & Son and Cranston & Co. gaining each the same position as in the previous class. The former had good examples of Madame Lambard, Duchesse de Morny, Alfred Colomb, Marie Van Houtte, La France, Beauty of Waltham, and Marie Baumann (White Baroness) was staged in this collection, but was thin and open in the centre; the latter having fine flowers of Prince Arthur, Baronne de Rothschild, Charles Lefebvre, Marguerite Brassac, and Alfred Colomb. Mr. G. Prince, Oxford, was the only exhibitor in the class for thirty-six single trusses, his exhibit being worthy of the first prize awarded him. His box scarcely contained a faulty bloom, and the best were Prince Arthur, Madame Marie Verdier, Senateur Vaisse, Alfred Colomb, Beauty of Waltham, Constantin Tretiakoff, Duchesse de Morny, Xavier Olivo, A. K. Williams, Mdlle. Marie Finger, and Madame Georges Schwartz, Marie Van Houtte, Rubens, and Souvenir d'Elise. For eighteen triplets the same exhibitor was again first, having no opposition; his blooms were throughout of first-rate quality. In the class for twelve new Roses (single trusses) not in commerce before 1879, the lead was taken by Messrs. G. Paul and Son, who staged very creditable blooms of Countess of Rosebery, Mrs. Harry Turner (very bright in colour), Brightness of Cheshunt, Comtesse de Sudrie (a promising Rose, and good), Duchess of Bedford, Lady Sheffield, and Madame Montel (soft rosy pink in colour, distinct, but thin and loose). Messrs. Cranston & Co. obtained the second award. Mr. Prince was the only exhibitor in the class for eighteen Tea or Noisette Roses, and was awarded the first prize for fine blooms of Madame Lambard, Catherine Mermet, Rubens, Marie Sisley, President, Souvenir d'Elise Vardon, and Comtesse de Nadaillac.

The amateur classes were well represented. In the class for thirty-six varieties, single trusses, C. Davies, Esq., was first with a box of grand blooms, having good Marguerite Brassac, Capitaine Christy, Etienne Levet, and Le Havre. C. J. Day, Esq., was second, having good examples of John Hopper, Souvenir d'un Ami, and Lord Macaulay. Messrs. T. B. Hall and Wm. Stubbs were third and fourth respectively with fine collections, but scarcely so fresh as the preceding. In the class for twenty-four single trusses the competition was good. C. Davies, Esq., took the lead, followed closely by W. J. Grant, Esq., and the Rev. J. H. Pemberton; a special prize being given to the Rev. L. Garnett for a good box containing a wonderful bloom of Harrison Weir. The first two named exhibitors were again in similar positions for twelve triplets, the principal good blooms being such as are named in other collections. For twelve Tea or Noisette Roses T. B. Hall, Esq., was well first, followed by the Rev. J. H. Pemberton, whose blooms were rather too open. The first-prize collection was remarkably fine, and contained superb blooms of Madame Lambard, Madame Willermoz, Anna Ollivier, Madame Margottin, Perle de Lyon, Jean Ducher, Madame Hippolyte Jamain, Souvenir d'Elise, and Madame Caroline Kuster. For six triplets Mr. Hall was again first, having in his box handsome blooms of Madame

Maubin; Mr. C. Davies was second, having grand blooms of Catherine Mermet; and Mr. W. J. Grant third. The last-named exhibitor was first with six single blooms of Mrs. Jowitt. For twelve blooms of any dark Hybrid Perpetual C. Davies, Esq., first with Louis Van Houtte, a special prize being awarded Mr. Grant for a box of Alfred Colomb. In the corresponding class for twelve light Hybrid Perpetuals Messrs. T. Griffiths and L. Garnett were first and second, the former showing Capitaine Christy and the latter La France.

The remaining sections of the schedule were only open to amateurs within the Hundred of Wirral and ten miles round the Liverpool Exchange. A gold medal and plate was given as the first prize for twenty-four single blooms, T. B. Hall, Esq., being the most successful exhibitor, and staged grand blooms. A special prize was given for the best Hybrid Perpetual bloom in this and the following five classes, the same exhibitor being successful with a fine bloom of Annie Wood. Messrs. J. M. Hodgson and T. Griffiths were second and third for the twenty-four. For eighteen blooms the last-named exhibitor was first, followed by Mr. W. Mease, gardener to C. W. Newmann, Esq., Wyneote Allerton; and Mr. T. B. Hall. In the class for eighteen single blooms, those competing in the above two classes being excluded, J. G. Churton, Esq., was successful, and was awarded the silver medal and plate. For twelve blooms the same exhibitor was again first. In the corresponding class for twelve blooms Mr. Waterman, gardener to A. Tate, Esq., was awarded the bronze medal. For twelve Tea or Noisette blooms Mr. T. B. Hall was again successful, but staged rather smaller blooms than in his above-mentioned exhibit. For nine blooms, E. Claxton, Esq., was first with really grand blooms, the best in the Exhibition of some kinds. A prize was also given for the collection having the best foliage, as well as for the best bloom, this exhibitor being successful in each case, therefore obtaining three first prizes for one box. The premier bloom was Alba Rosea, large, full, and good. For six blooms Mr. Waterman was first, staging grand examples of Madame Lambard and Madame Willmoe. Messrs. Mulleneaux, Mereer, Dod, and Edwards were the principal prizetakers in the remaining small classes. There were four classes devoted to cottagers, which were fairly well represented.

The miscellaneous exhibits were not numerous. Messrs. James Dickson & Sons, Newton Nurseries, Chester, staged a good assortment of cut Roses. Mr. G. Smith, Dell Nursery, Rock Ferry, had a neat collection of small decorative flowering and foliage plants; and Mr. S. Johnson, South Grove Nursery, Oxtun, staged a similar collection.

SOME SPECIES OF PINKS.

THE genus *Dianthus* includes some of our choicest Alpines, border, and florists' flowers. None need mistake their beautiful salver-shaped flowers, almost invariably grassy leaves, and jointed stems. Their flowers vary from white and yellow to the deepest crimson. For horticultural purposes Pinks may be divided into three sections: 1, the truly Alpine; 2, border kinds, being distinct species; 3, border kinds, being florists' flowers.

The first section contains some of our most lovely rock plants. *D. alpinus* is a diminutive species found naturally on limestone soils, upon which it retains its character and succeeds better, requiring a good peaty loam and a sunny position. It differs from the other dwarf kinds in its sturdy habit, half-woody stems, which become much developed in age, and obtuse, recurved, shining leathery leaves. It has rose-coloured flowers; the expanded portion of the petals are distinctly wedge-shaped, and have a dark blotch at their base.

D. glacialis may be regarded as the type of all that is lovely amongst Alpines. It enjoys a cool peaty loam entirely free from lime, and succeeds better, providing good drainage can be secured, on the general level than if elevated, because a more equable moist condition of the soil can be obtained. To give an idea of my meaning I would say the best plants I have seen of this species had a tiny moss growing amongst its stems; it also enjoys partial shade. The difference between this and the previous one is that there is scarcely any development of a woody stem, and the erect, pointed, membranous, dull green leaves always appear to rise directly from the ground. It has rose-coloured flowers almost circular in shape, supported on stems about 3 inches high. *D. Fischeri* is a close relative of the above and equally beautiful. It requires similar treatment.

D. neglectus amongst choice Alpine Pinks is the most likely to become popular, not being so fastidious as to soil, and is more robust. Like the Cheddar Pink (*D. cæsius*) it rapidly increases by its underground stems. In a sunny position in well-drained peaty loam it should give entire satisfaction. Its flowers are a most lovely rose, circular in shape, and although not less beautiful it is quite noble in comparison with the Glacial Pink. Its flowers are not borne singly, as is the case with the two preceding kinds. I have gathered seeds of *D. alpinus*, *D. glacialis*, and *D. neglectus*, but have never been able to rear plants from seed sown the following spring. Of *D. alpinus* I have gathered seedlings on dry limestone ledges, the seed having fallen from plants above. My impression consequently is that seed of these (and

perhaps many more Alpines) ought to be sown as soon as gathered.

D. arenarius is a very dwarf kind with pointed grass-like leaves. Its flowers, pale rose and much fimbriated, are borne on short wiry stems. It will grow in any free soil. As there are so many coarser and nearly allied kinds it is advisable to increase this by division, as seedlings do not come true.

D. petraeus is in appearance and habit generally intermediate between *D. neglectus* and *D. cæsius*. It has the beautiful, though not so deep, rosy flowers of the former, and the foliage, but not so glaucous, of the latter. It is easy to grow, but should be increased by division. Owing to its varying so much from seed I had considerable difficulty in obtaining the true species, and eventually procured it from the late Mr. J. C. Niven of Hull.

The Maiden Pink (*D. deltoides*) is scarcely choice enough for a good rock garden. It is certainly a very free bloomer, and its crowds of tiny crimson flowers (the petals of each flower have wedge-shaped dark blotches at their base) are very telling. There is, however, a very beautiful variety of this with glaucous foliage and neater habit, named *D. deltoides glaucus*. Its flowers are very pale rose, quite attractive, with a darker blotch, as in the case of the type. It increases freely from seed, but does not retain its character. Division is the better mode of propagation.

Section 2 includes kinds more adapted for a select herbaceous border occupying front rank. *D. collinus*, a very showy kind with deep rosy flowers, blooms late in the summer; the process of flowering so nearly exhausted it for two successive seasons, that only by cuttings, seeds being scarce, did I manage to keep up a stock. It is near the Sweet William (*Dianthus barbatus*), but has more grass-like foliage, much larger flowers, and cymes not so umbellate—what might be termed fasciated.

D. monspeliacus is a neat kind, with abundant rosy fimbriated flowers. There are many species nearly allied to this usually grown on rock gardens, which are equally adapted for the front rank of the border. *D. monspeliacus*, I think, is the best of the group, which includes what English nurserymen sell as *D. corsicus*, *D. fimbriatus*, *D. floribundus*, *D. fragrans*, *D. pini-folius*, *D. pungens*, *D. suavis*, and *D. Simsii*. None of the above can be relied upon to come true from seed, and should be increased by division.

D. plumarius var. *annulatus* is the parent, or at least one of the parents, of the double Pinks; the single form is very pretty and interesting.

D. tymphrestus seems to be a larger form of the old Maiden Pink (*D. deltoides*), and on that account will be more suitable for the border. It sows itself freely.

D. Seguieri is of recent introduction. It came to us from Dr. Regel and Messrs. Backhouse; but, like many other members of Caryophyllaceæ and Crueiferae, notably plants so long in transit from St. Petersburg, were dead when they arrived. It has a very neat appearance in summer, sitting upon the ground in grassy tufts, bearing very bright heads of comparatively large flowers, deep crimson in colour. In summer it might be taken for a large bright form of the Alpine *D. atrorubens*, but instead of one common swollen rootstock of the latter it has a ramifying underground growth, which is all, or nearly all, that remains of the plant in winter. *D. atrorubens* remains grassy above ground.

Section 3 includes what are known as florists' flowers, such as the Mule Pink, the various kinds of Carnations, Picotees, Indian Pinks, *D. superbus hybridus*, and Sweet Williams.—M. J. B.

FRUIT PROSPECTS—SLUGS.

THE fruit prospects in Gloucestershire are being very much marred by the continual downpour of rain. Early in the season the Strawberry crop was never more promising. There was plenty of bloom and plenty of fruit set, but in consequence of so much rain some of the fruit fell off the plants of the larger varieties, such as Sir J. Paxton, before they were ripe, and those which remained were not as good as usual. There was a good crop on the earlier varieties, such as Keens' Seedling and Vicomtesse Hericart de Thury, equal to that of last year, but many berries have become mouldy, and at one time the fruit was too soft to gather. We have had 5 inches of rain to the middle of July, and 2.20 inches in one day. The Raspberries are a good crop, but deficient in flavour, and we have to watch our opportunity to gather when dry. The Gooseberry crop will be seriously injured unless we have a change for the better in a few days.

Planting out small annuals has been rather heartless work this summer; the slugs abound, and seem to have most voracious appetites. We put out plants, and they are soon eaten off; we plant again with much the same result. We use lime, but the

effect is soon lost by its being washed away. Hand-picking every night was the only way to preserve the plants, and now they are not looking nearly as well as they ought to do at this advanced period of the year. The result of our labours this season have certainly not equalled the favourable expectations that were at one time entertained.—AMATEUR, Cirencester.

SILKWORMS AND SILKWORM REARING.—12.

(Continued from page 540, last volume.)

To what has been already stated concerning the methods of rearing the common silkworm (*Bombyx Mori*) I wish to add, by way of supplement, an extract from some observations upon the subject appearing in the "Entomologist" of June last. These interesting remarks are penned by Miss E. A. Ormerod, a lady who has distinguished herself in the direction of economic entomology especially, and who is now appointed honorary consulting entomologist to the Royal Agricultural Society. It seems that about ten years ago this lady made some experiments in rearing the Mulberry worm, a parcel of larvæ received at the beginning of June being divided into three companies or parties. All were fed similarly upon Mulberry sprays, in length from 12 to 18 inches or so, which were placed in pots and boxes of earth, and which were found generally to retain their freshness until the leaves were almost stripped. The surface earth of the pots, upon which the excretions of the silkworms fell, was occasionally removed. Little handling was requisite, and they had the advantage of plenty of air with natural exercise on the twigs. One of the parties was reared in a succession vinery, where the air was kept damp, and the temperature was genial but not high, varying somewhat when the heat of the sun was admitted. A second party was placed in a room of equable temperature (about 62°), cold air being excluded at night. To the third was given a home in a garden loft, the windows of which were open at all times, and where occasionally the thermometer fell below 50°. There was no great mortality amongst any group out of the three, but the worms kept in the vinery always appeared to be more active and flourishing than their brethren of the room or loft; also they made more rapid progress, and all their cocoons were spun before the tardy worms in the loft had completed their growth.

In estimating the value of this experiment, however, it must be remembered that these silkworms when so distributed were not newly hatched. As they are stated to have been from half to three-quarters of an inch in length they were probably a fortnight old. Had worms just out of the egg been placed in such a loft as is described it is likely many would have died. The vinery, again, during the very juvenile stage, might have had too forcing an effect, and obviously the feeding upon branches of Mulberry inserted in pots could only be carried out upon a small scale, whatever advantages it might have. These experiments quite confirm what has been previously advanced in reference to the need of scrupulous cleanliness and ventilation; it is evident, though, that silkworms will live and produce satisfactory cocoons in an atmosphere which varies greatly in temperature. Nearly allied to *Bombyx* or *Attacus Cynthia*, described in our last article, and a species having its habitat in several districts of Northern Asia, is the *A. Ricini*, an Indian species, rather less in size. Bengal is the province which has supplied most of the examples of this insect which have been sent to Europe. As the name implies, the food of the caterpillar or worm is the Castor-oil Plant—one or more species of *Ricinus*. We might infer, perhaps, from this fact that the leaves being somewhat unctuous, silk yielded by the cocoons of *A. Ricini* would be rich and glossy. It does not seem, however, to have any particular excellence, while the cocoons present some trouble in the winding. Since one Castor-oil Plant can be easily cultivated in such a climate as is that of Southern France, several attempts have been made to induce farmers there to grow crops of it, because the seeds would be marketable on account of their oil. But as this silkworm does not promise much the enterprise is unlikely to be followed up, and it is a serious drawback that the species of *Ricinus* in question is only annual in Europe.

A well-known article of Indian produce is the particular kind of silk called Tussur or Tussore silk, of somewhat coarse texture, yielded by the silkworm of an allied species, *Attacus Mylitta*, also named "Paphia" in some books, the latter being rather misleading. One or two of our British experimenters have been anxious to get this species encouraged in these islands, on the

supposition that by a little management the worms would thrive well enough without shelter from the effects of our changeable climate. The silk can be wound off, although it is more usually reeled, and the cocoons exhibit much variety in size and colour; though usually grey of some shade, they are also white or yellow in other examples. In Switzerland for fifteen or twenty years a succession of these worms were reared in the open air by M. de Chavannes, but subsequently the race died out through some accident. The moth is banded, and bears four eye-like spots, as may be seen in our figure (fig. 14); the caterpillar has the characteristic of *A. Cynthia*, shown in our preceding article, though superior in size.

Mr. Manuel, Manager of the Wild Silk Agency at Rangoon, has communicated several facts relating to the history of the Tussur silkworm, which is generally fed upon some species of Oak. He perceived, having had large numbers under observation, that they much preferred light to darkness, for when they were supplied with leaves in jars that were covered by thin white discs, the silkworms all endeavoured to reach a spot in or near these while they were reposing. Not uncommonly they devoured the cast-off skin after each moult, making also their first meal of the egg-shell that they had quitted. He suggests that these and other caterpillars may occasionally free themselves from the old skin by biting off portions. In their attitudes the Tussur worms vary, since part of them will moult with their heads stretched upwards, and part with it bent down; the latter, as a rule, were found to moult more readily. There has as yet been a difficulty in getting specimens of this insect, *A. Mylitta*, for British experiments, some further trials might advantageously be made. The remark applies to all the Oak-feeding species of silkworm, that if it is possible to

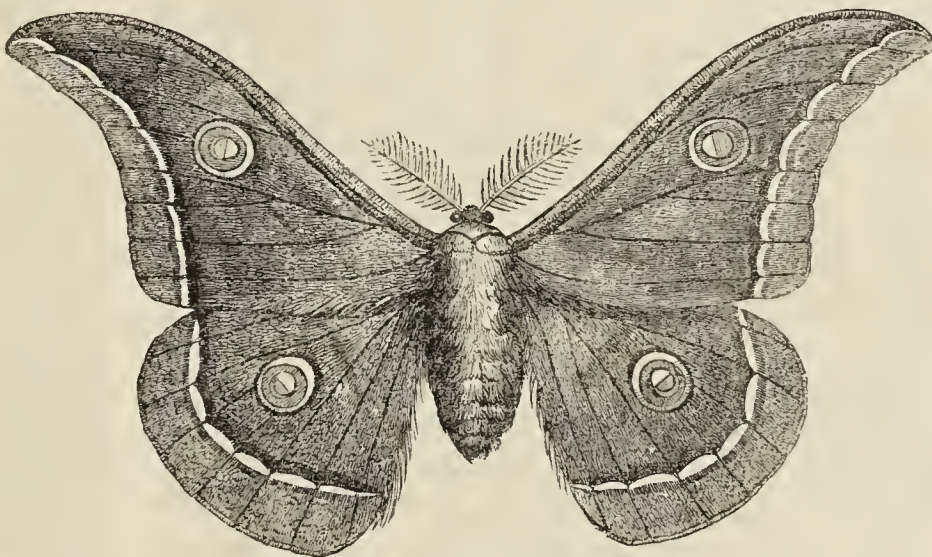


Fig. 14.—Moth of *Attacus Mylitta*.

place them upon trees or shrubs growing in the usual way, the worms do far better than when they are living upon the leaves of twigs cut off.

Attacus Roylei, the silkworm of the Himalayan Oak, has been tried both in Europe and America, some districts of Germany suiting it very well. In appearance this is more like the celebrated silkworm of Japan, called *B. Yama Mai* (to be hereafter noticed) than the others of its genus, and a crossing has been tried between this moth and *B. Pernyi*. The cocoon of the hybrid is excellent, superior to the natural cocoon of *A. Roylei*. The worm is also



Fig. 15.—Cocoon of *Attacus Mylitta*.

easier to rear; though M. Wailly of Clapham has fed with tolerable success the silkworm of the Himalayas in that London suburb, and obtained the above hybrid as well. During the winter the species is in the pupal state, moths emerge in May or June, and the silkworms feed through the summer. Upon the ordinary cocoon of *A. Roylei* there is a tough outer envelope which is of no value; the silk below it is therefore less in quantity,

and the moths, it is noticeable, fly about wildly, when confined acting quite differently to the placid B. Mori.—J. R. S. C.

NATIONAL ROSE, PANSY, AND PINK SHOW AT ROTHESAY.

A GRAND Exhibition of flowers was held on the 14th and 15th inst. at Rothesay (the Brighton of Scotland) within the new Public Halls. We give a list of the principal prizes.

Roses.—For twenty-four blooms the first prize (a gold medal) was awarded to Mr. H. Dickson, Belmont Nursery, Belfast, who staged splendid flowers of the following:—Duchess of Bedford, La France, Madame C. Wood, Julius Finger, Countess of Rosebery, Pride of Waltham, Madame Verdier, Duke of Teck, Madame Marie Verdier, Duke of Edinburgh, Lady Sheffield, A. K. Williams, Alfred Colomb, Horace Vernet, Auguste Buchner, Marquise de St. Amand, Roseriste Jacobs, Brightness of Cheshunt, Baronne de Rothschild, Mrs. Harry Turner, Capitaine Christy, Mrs. Jowett, Mons. E. Y. Teas, and Comtesse de Cammonda. Second prize: Mr. T. Smith, Stranraer, whose lot included fine flowers of La France, Capitaine Christy, Marquis of Salisbury, Marquise de Castellane, Harrison Weir, Alfred Colomb, Baronne de Rothschild, Charles Lefebvre, Duchess of Bedford, Madame Montet, Madame J. Periere, and Camille Bernardin. For twelve blooms the first prize (a silver medal) was won by Mr. Wm. Parlange, gardener, Roselea, Row, with excellent blooms; second prize, Mr. McIntyre, jun., gardener, Blairmore; third, Mr. J. Millar, Cardross.

Pansies.—In the class for twenty-four Show and twenty-four Fancy Pansies the first prize, a gold medal, was awarded to Messrs. William Paul & Son, Crossflat Nurseries, Paisley, whose flowers were of excellent quality, the Judges pronouncing the Show Pansies the finest staged for many years. The varieties were: Shows—Peter Lyle, A. Watt, J. P. Barbour, W. L. Thomson, dark self; Mrs. Galloway, white self; R. Pollock, Dr. Livingstone, Wm. Robin, Bailie Cochrane, D. Dalglish, A. Cameron, R. Williamson, yellow grounds; Mrs. Muir, Jeannie Grieve, Miss Meikle, Miss Baird, Jeannie Johnstone, white grounds; and seven seedlings unnamed. Fancies—James Lillie, Mrs. Scott Plummer, Mrs. Berkmyre, Jane Adair Martin, W. McIntosh, Thalia, A. Stephen, Jessie Budd, Sir P. K. Murray, Adonis, E. Caird, L. V. Heathcote, Catherine Agnes, Mrs. Russell, R. Cowan, Mrs. W. O. McCormick, Mrs. J. Watt, Mrs. Robinson, and six unnamed seedlings. Second prize Mr. John Sutherland, Victoria Nursery, Lenzie, whose Fancy varieties were much superior in merit to his show flowers, the following were the most noteworthy. Shows—Rev. J. Morrison, Mrs. Cadzow, Matthew Pollock, Wm. Robin, Manve Queen, R. Burns, Mrs. Arthur, Jessie Foote, Golden Circle, Mrs. Dobbie. Fancies—Catherine Agnes, Mrs. Jamieson, Livadia, Mrs. J. Stewart, Countess of Home, Robert Goodwin, Duchess of Edinburgh, Wm. Cuthbertson, Mrs. Findlay, Earl Beaconsfield, Mrs. Taylor, and L. V. Heathcote. Third prize Mr. W. Dickson, Ladyburn Nursery, Paisley, who had a very neat collection. For twelve Show and twelve Fancy Pansies the first prize, a silver medal, was won by Mr. Wm. Storrie, Lenzie, with fine blooms; second prize, Mr. R. Millar, Paisley; third, Mr. A. Irvin, Tighnabruich.

Pinks.—For twelve blooms, the first prize, a silver medal, was secured by Messrs. Wm. Paul & Son, who staged very large flowers, perfect in lacing, of the following—Wm. Paul, Modesty, Egeria, Adela, Wm. Watson, Wm. Bruce, Vanessa, Oimara, Dr. Masters, Mary Auberton, Lady Golightly, and Ada Louise. Second, Wm. Dickson, Paisley. Third, John Love, Rothesay.

Mr. Dickson, Belfast, and Mr. Smith, Stranraer, exhibited several stands of magnificent Roses; Messrs. Dobbie & Co., Rothesay, Phloxes, Pansies, &c. Among the prizetakers in other classes we observe the names of Messrs. J. Mackenzie, Lenzie; J. Stewart, Campsie; R. Stewart, Woodielea; J. Constable, Paisley; C. H. Johnstone, Bairhead; J. Douglas, Largs; J. McCrorie, Kilbarchan; J. Kidd, Rothesay; D. Wallace, Rothesay; D. Grant, Rothesay; J. Wilson, Largs; and G. L. Hunter, Row.

CARDIFF CASTLE CUCUMBER AND MUIR'S VEGETABLE MARROW.

SHOULD a Cucumber be prolific? Cardiff Castle is second to none. Should it be a free grower and hardy? This also excels in both points. And if quality and handsomeness, apart from mere bulkiness, be also wanted, this variety has these in an eminent degree. For amateurs, for professionals, for market growers, for exhibitors, it is alike suited, as whatever quality each of these may look for they will find it in Cardiff Castle Cucumber. Very high praise this, but not more than should be given. I have not had an opportunity of testing it as a winter Cucumber, but as a summer one I find it just such as I would recommend to any inquirer. Judging from its free and hardy habit, I imagine it must be good for winter work also.

Muir's Vegetable Marrow has given us the first Marrows this year, and capital little fruits they are. They are produced very

freely, and, although not large individually, the prolific crop makes up for that. In flavour and in tenderness it surpasses that standard old variety Moore's Cream. For private use it cannot be too highly recommended.—J. H.

STOPPING TOMATOES.

MR. MUIR and Mr. Iggulden have each had something to say on the setting of Tomatoes, the former considering a dry atmosphere important, the second placing his confidence in artificial fertilisation. Both are doubtless right so far as they go, but in a sunless climate I find that the method of training and stopping has much to do with securing a good set of fruit.

My system may be called the spur. A shoot is run up to whatever height may be desired, but the leader is always stopped just at the bunch, and the shoot which springs below trained as leader. This stopping insures the starting of shoots from the axils of the leaves, which soon show fruit. These shoots are stopped at the bunch and are not permitted to extend afterwards. These shoots I call spurs. This rigorous stopping causes a "set" that is never experienced when the shoots are allowed to grow long.—N. B.

[We presume our correspondent's remarks apply to plants grown under glass.]



HARDY FRUIT GARDEN.

EXAMINE the various kinds of fruit trees trained to walls, and secure the leading shoots, stopping those desired for forming spurs to about three leaves of growth, and remove those which are superfluous. See that fruit swelling off is not injured by nails or undue pressure in any respect, but is given room and properly disposed for receiving light and air for attaining proper development. Such fruit trees on walls as the Apricot, Peach, Nectarine, Plum, and Pear, which are swelling their fruit, should be assisted by liberal applications of liquid manure, and be afterwards mulched with short manure. Late Cherries should now be securely netted to preserve them from birds, the leading shoots being nailed or tied in, while the foreright shoots should be pinched. Morellos should have as much wood laid in as there is room for, and any not required for this purpose should be removed or pinched. Raspberries, to have them fine and prolong the season, should be well supplied with water if the weather be dry, and the young canes should be thinned out to four to six to each stool, reserving the strongest and best placed. The autumn-bearing varieties should now be encouraged by mulching and watering, and in exposed situations will need to be supported with stakes. Late kinds of Strawberries will need plentiful supplies of water if the weather be dry. Continue layering runners of Strawberries in pots as they can be procured for forming new plantations or for forcing.

FRUIT HOUSES.

Pines.—Plants started into fruit at an early period of the year will be ripened off as regards the early sorts, and those of the later varieties started at the same time will be sufficiently advanced to bear removal to a vinery or elsewhere to finish. Advantage should at once be taken of the additional space to give the successional stock more room. Avoid if possible making new beds now, but if it be necessary about 2 feet of new tan will be ample. Beds which had a liberal supply of new tan in spring will scarcely need any now, but will merely require to be turned over to a depth of 18 inches, while those not so renewed with fresh material at that time may, if it be necessary, have an addition of fresh tan about 1 foot deep, and mixed with the old material to a depth of about 18 inches. Suckers from the plants above alluded to will now be fit for potting. Rootless suckers at this season thrive best in a close moist pit, having a fermenting bed with a temperature of about 90°. In potting ram the fibrous loam firmly into the pots and around the base of the sucker, water at once, and plunge without delay, covering the surface of the pots so as to prevent the soil becoming dry at the surface. More

water will hardly be necessary until new roots are formed, as with effectual shading from powerful sun, and ventilating a little at about 85°, the suckers will root quickly. A slight syringing occasionally will be beneficial.

Peaches and Nectarines.—We have before urged the necessity of removing the roof lights off trees subjected to early forcing as soon as the buds are fairly advanced, as they will be by this time, and no further delay should be permitted in removing the lights. The night dews have a good effect upon the trees, and they are much refreshed by rains; but should these not fall sufficiently often to keep the soil in a moist condition artificial watering must be resorted to, for under no circumstances must the trees suffer by want of water at the roots, nor must red spider or other insects be allowed to obtain a footing on the foliage. Young trees that have stronger wood than older trees will require a longer time to mature the growth and buds than trees less vigorous, and the roof lights should not be removed so early in their case. In the case of young trees that grow too luxuriantly a trench may be taken out about one-third the distance from the stem the trees cover of trellis, and as deep as the roots, which should all be cut through at the distance indicated. The time to do this is as soon as the buds are formed and the foliage still upon the trees. The trench should be filled in again firmly, a good watering being given, and the trees syringed morning and afternoon for a few days, keeping the house rather close, and afterwards ventilating. This process seldom fails to overcome the difficulty sometimes experienced in securing a good set and the satisfactory stoning of the fruit.

Where it is contemplated to plant young trees, either in new structures or otherwise, the borders for their reception should now be prepared. They should be well drained with 3-inch pipes, both as regards the inside and outside borders, and have proper fall and outlet over the drains, and the bottom of the borders should be 9 inches to a foot depth of rubble—coarsest at the bottom and smallest on the top—and this should be covered with a layer of turves to prevent the drainage being stopped; 2 feet in depth of soil is sufficient. The top 3 or 4 inches of a pasture where the soil is a rather strong loam if overlying limestone it could not be better, and this being chopped up roughly should be put together firmly. If deficient in calcareous matter a tenth part of old mortar rubbish or chalk broken up from the size of an egg down to a hazel nut may be thoroughly incorporated with the soil. Failing the turfy loam any good loamy garden soil inclining to be stiff will answer, adding about a similar quantity of old mortar rubbish or chalk as advised for the turfy loam, and this should be put in firmly.

In planting young trees in houses it is advisable to choose such as have been grown upon the approved system of training two or three years, such being grown in pots under glass, trees of this description being prepared by the leading nurserymen, and coming into profit early. When trees of this kind are forthcoming no time should be lost in making preparation for and planting them. It is quite unnecessary to disentangle the roots, but loosen the sides of the ball carefully, make the soil around as hard as the original, giving a good watering, and mulch with manure so as to encourage feeders from the stem. If planted before the leaves have fallen the trees will become established in the borders, and may be forced the following season, the time of starting being regulated by the growth and its maturation in the previous season.

For early forcing Alexander, Hales' Early, Early Grosse Mignonne, A Bee, and Royal George Peaches will afford a succession of eight to ten or more weeks' duration. Suitable Nectarines for association with the above for early forcing are Lord Napier and Elrue. Of Peaches suitable for affording ripe fruit by forcing in June and onwards in addition to Royal George are Grosse Mignonne, Noblesse, Violette Hâtive, Bellegarde, Barrington, Stirling Castle, and Late Admirable. The last three along with Lord Palmerston, Sea Eagle, and Osprey, also Salwey, are suitable for late houses. Midseason Nectarines are besides Elrue, Violette Hâtive, Hardwicke Seedling, Pine Apple, Humboldt, and Victoria.

PLANT HOUSES.

Greenhouse.—Early-flowering Pelargoniums should be placed out-

doors in the full sun without delay, so as to thoroughly ripen their wood previous to cutting them down, just giving sufficient water to prevent flagging. Calceolaria seed should be sown if not already done, the pan being placed under a handlight in the shade, it being important that the soil be kept regularly moist to insure the germination of the seed, and the young plants require to be kept cool and moist.

The early-flowering varieties of Heaths that have since blooming made considerable growth should now be exposed to the open air to harden them and insure free flowering. In removing Heaths out of doors it is well to place them for a few days at the north side of a wall where they will not at first be fully exposed to the sun, as when powerful it sometimes turns the leaves brown. On the sun side of the pot place a piece of canvas or mat to prevent the sun heating the pots, or the roots will be destroyed. The plants will require more water than when under glass, and on no account must they suffer by want of it. Young Heaths potted in the early part of the season will be making free growth, and must have timely attention in stopping and training, keeping the strong shoots well tied down, and the weaker upright to induce equal vigour throughout the plants.

Orchids.—Many of the early-growing plants will now have completed their growth for the season: remove them to a cooler house with a temperature of 60° without sun heat. Many Dendrobiums, especially *D. Cambridgeanum*, *D. nobile*, &c., frequently make a second growth when kept in their growing quarters, in which case the new growths seldom become well matured; the plants, therefore, should be placed in a house less charged with heat and moisture, and a greater supply of air should be afforded them. Cattleyas in a growing state should be afforded plenty of moisture to enable them to make plump pseudo-bulbs. Afford *Calanthes* weak liquid manure, and sponge the leaves frequently to keep them free from scale, thrips, and red spider, using an insecticide, and afterwards wash it off with clean water. *Sobralias* being subject to red spider should have similar treatment. *Thunias alba* and *Bensoniæ* flowering at this season are valuable, and being of easy culture should have place in even small collections. They require similar treatment to *Calanthes* during the season of growth. Many *Odontoglossums* and *Masdevallias* will now require a shift, especially those that are growing strongly and have filled their pots with roots. Keep the *Odontoglossum* house as cool as possible, using the syringe freely, affording water plentifully to those growing rapidly. Fumigate frequently to keep down aphides and thrips.

THE BEE-KEEPER.

PROLONGING THE LIFE OF THE QUEEN BEE.

DR. DZIERZON'S letter on the above subject (page 500, last volume) contains some startling statements, which I shall briefly notice. As the Doctor's name is far-famed and stands high on the list of authorities on bee questions, I regret that he has written the letter I am now about to review. Most of his reasoning and assertions in this letter are based on assumption only. He says first, "That bees exhaust their strength and die in about six weeks during the busiest time in spring and summer, whereas those reared late in summer and in autumn look as strong and young on their first appearance in spring, after six months' rest during autumn and winter, as if they had only just left their cells." This is inaccurate, for bees generally do not exhaust their strength and die in six weeks after birth by reason of hard work. Every close-observing apiarian of experience knows that during the spring and summer months, when weather is favourable and honey abundant, bees work very hard—as hard as they can work—and yet the death-rate is far short of the birth-rate; for the increase of population in spring and summer is enormous, especially so when bees are working hard and getting much honey. If hard work exhaust and kill bees the population of hives would be much smaller in favourable seasons than in unfavourable ones. But this is not the case. In honey seasons numerous colonies are sent off, and colonies become strong in population, often become parent hives the same season.

Take a stock hive in April containing 20,000 bees. In May its population will increase to 40,000; it swarms twice or thrice, and after three months of hard work, the bees numbering 40,000 in each hive, weighing 8 lbs. per swarm, look as fresh and healthy as ever they did. Hard work, then, does not kill bees nor shorten the lives of queens. What, then, causes the loss of so many bees in spring and summer months? Some that are hatched do not live and labour long. Thousands and tens of thousands of bees die on the very threshold of existence. They are born with industrial instincts so strong that they commence working before they are fit for it; they go to the fields before they are well able to fly or bear cold or carry loads. Again, thousands and tens of thousands of adult bees inured to labour are overtaken on the wing by storms of wind and rain, driven to the ground and chilled into a helpless condition. In both cases the loss is caused by misfortune, not by continuous hard work. Hives are sometimes taken to the moors, and there in three weeks 40 lbs. or 50 lbs. of honey are gathered, the hives coming back as well filled with bees as they were when they went. But if storms visit the bees while they are at work on the Heather two-thirds of their number are lost. Hives containing 9 lbs. or 10 lbs. of bees have been known to lose 7 lbs. in three weeks. We thus learn that storms and weather are more destructive of bee life than hard work.

I now come to the notions of Dr. Dzierzon about prolonging the lives of queen bees, and I have no hesitation in saying that they are incorrect. He says, "The question as to whether and how the life of a queen may be prolonged was suggested to me by a dispute which had arisen between Miss Titz of Lasswitz, a great Silesian bee-keeper, and a bee-master of the name of St. Miss Titz, on the occasion of the Neissen Meeting, showed some friends who visited her apiary an Italian queen which she stated to be six years old, adding that she had succeeded in keeping this valuable queen alive so long by keeping her from excessive breeding. Mr. St was of a different opinion, maintaining that there was no doubt a young queen had been raised unnoticed, as, according to his long experience, the life of an Italian queen never exceeded three years. He further asserted that eggs became developed in the ovary of the queen and pass involuntarily, it being impossible for any influence to be exerted on the ovary. In my opinion Mr. St is wrong on both points." On both points I think he is right, and the Doctor wrong. A queen bee cannot alter the laws of Nature. She cannot determine the number or regulate the supply of eggs necessary for a hive. Among enlightened people arguments on this subject are unnecessary. When queen bees are a few days old they are fertilised for life, and are, according to Dr. Dzierzon, capable of laying and distributing in the cells 3000 eggs per day in breeding seasons—that is, 125 eggs every hour, or two every minute. An extensive experience and close observation have led me to conclusions very different from those of Dr. Dzierzon. I agree with Mr. St in stating that after impregnation queen bees have no power to limit or increase the number of eggs, neither have they power to retain them after they are formed. The evidence of a lady is not enough to convince us that she "prolonged the life of a queen bee by keeping her from excessive breeding." The word "natural breeding" should be here used instead of "excessive breeding," for nobody knows that the breeding of this queen was excessive. It is stated that the queen that lived six years "was kept from over-exerting herself." It is really not fair to use such words as over-exertion, for who knows what it is or how to prevent it? Queens that lay eggs enough for hives containing 4000 cubic inches of space are quite as healthy and live as long as those in hives containing 1000 inches of space only. The small space given to the one queen does not prolong her life, neither does the large space given to the other queen shorten her days. In my apiary I have had satisfactory proof that queens in small hives lay as many eggs as those in large hives, though three-fourths of those laid in small hives are not used. A queen bee is very productive. Dr. Dzierzon says, "An empty comb containing six thousand cells is often found full of eggs at the end of two days, which shows that a queen is capable of laying three thousand eggs a day." Something is said in the Doctor's letter about a queen being "able to keep back a mature egg in the ovary for some time without injury to herself or the egg." If she lays at the rate of 125 eggs per hour she cannot keep them back long. Often, very often, a queen lays two eggs in a cell, and sometimes three are dropped into one cell. In the act of swarming a queen has been seen to drop eggs on the flight board. Even if a pregnant queen is held captive in the bee-keeper's hand for a short time she lays eggs there. When more eggs are laid in a hive than are needed the bees remove them, and some cells are not visited by the queen, the bees carry eggs to them. As it is a very common occurrence for bees to set eggs and hatch young queens to take the place of old ones, I think that the queen said

to be six years old was younger, and had been hatched unseen and unknown by Miss Titz, and that the theory of prolonging the lives of queen bees is without foundation in fact, and will not be seriously considered by practical apiarists.—A. PETTIGREW, *Bowdon*.

BOG HEATHER.—In this district there are square miles of Heather growing on bog land, which is generally so wet that sphagnum grows plentifully among the Heather roots. Is this Heather likely to be good for bees? Those who live among it say no—that even in favourable seasons bees can hardly live on it, so little is the honey secreted by the flowers. Have any of your experts at bee-keeping any experience of such Heather? A few miles from here, in the land of the Macgregor, enormous honey harvests are secured by the railway officials and others; but then the Heather grows on dry land.—A NORTHERNER.

TRADE CATALOGUE RECEIVED.

Stephen Brown, Weston-super-Mare.—*List of Seeds.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Late Cucumbers (*F. O.*).—Strong plants being provided, and planted now in good soil in a dung-heated frame, will, with good attention as regards watering, ventilation, and temperature, produce abundantly during the autumn months.

Caterpillars on Dahlias (*Alar*).—You had better examine the plants carefully and pick off the depredators daily or nightly. Syringing the plants with quassia water might also render them distasteful to the caterpillars, and if you spread a ring of sharp sand saturated with paraffin round the stem of each plant and a short distance from it, it will doubtless form a good barrier against the manraders.

Andromeda (*Zenobia*) *speciosa* var. *pulverulenta* (*Olive*).—The plant, of which you send a small specimen, is an evergreen shrub bearing the above name, and was introduced from North Carolina at the beginning of the present century. It is hardy in the south of England, but requires a specially prepared border, as it prefers a compost of loam or peat, the latter forming a large proportion of the mixture.

Tomatoes (*J. Doyle*).—Secure the plants to the wall, the main or fruit-bearing stems not being closer than 2 feet. When these have produced four or five bunches of fruit stop the leading growths producing them and all other growths both above and below the fruit that may be produced. Only the principal foliage should be allowed to develop, and this be prevented shading the fruit densely. Supply the plants with liquid manure if they need it, as they require much support when bearing heavy crops.

Seedling Raspberry (*Amateur*).—The dates of the two next meetings of the Fruit Committee of the Royal Horticultural Society are July 25th and August 8th. If the fruit is carefully packed and addressed to Mr. A. F. Barron, Royal Horticultural Society's Gardens, South Kensington, and a letter is addressed to Mr. Barron by a previous post, giving particulars of the variety, the matter will be duly attended to. It will be well to send fruit-bearing sprays as well as a dish of ripe fruit of the Raspberry for examination of the Committee.

Exhibiting Plants (*Exhibitor*).—Unless there is any stipulation to the contrary the plants mentioned cannot be excluded from the classes quoted, as they are undoubtedly either stove or greenhouse plants. At some exhibitions Ferns are not admissible for competition except in specified classes, and in others they are allowed to form part of a collection of stove and greenhouse plants. If the condition of the class relative to hanging baskets is adhered to with the greatest strictness your Nepenthes would not be eligible. Everything in this matter depends on the object of the committee in providing the class. Nepenthes are really ornamental-foliaged plants, and most beautiful objects as basket plants. We should exhibit the plant.

Begonias Unhealthy (*M. D.*).—We do not think that either thrips or mildew are the cause of the discoloration and shrivelling at the edges of the leaves. The injury has been caused by a check which the plants have received in some way. An excess of water causing the roots to decay would be followed by the results before us, and precisely the same effects would be apparent if the soil had at any time been so dry as to cause the roots to shrivel. Further, the leaves of these plants almost inevitably shrivel if the plants have been for a time kept in a rather close frame or house, and then removed to a structure in which the atmosphere is much drier. Many plants are injured soon after their arrival from nurseries, because the conditions under which they had been grown were not known or followed as nearly as possible in their new quarters. You do not state in what condition the plants were when they arrived, nor the treatment

to which they have since been subjected; had you done so we should have no doubt been better able to have given a more explicit reply; but we repeat the injury is not caused by insects of any kind nor mildew. If the plants were healthy when you received them they have been subjected to some error in treatment.

Thuia aurea Dying (Castle Park).—We regret extremely the loss of such splendid specimens. Our opinion as to the "probable cause of death" is general debility consequent on the exhaustion of the soil, and the severe winters immediately following. We have known many specimens seriously injured and some killed during the past three years. This was undoubtedly due to extreme frost, which specimens deficient in strength and vigour were unable to resist—that is to say, old examples succumbed while some younger and stronger in the same collection survived. This Thuia produces a great mass of fibrous roots which do not extend to any great distance, and consequently after some years of growth the soil becomes quite exhausted. This is the reason why so many specimens become unhealthy and portions commence dying after a growth of twenty years, more or less, according to the nature of the soil. There is only one method of which we are aware of arresting the decay of such specimens, and that is to act promptly on the first signs of exhaustion by first removing the sterile soil as far as the roots extend; then if the soil is dry, as it generally is, saturate it with weak liquid manure, and next and last adding fresh compost, such as good loam and wood ashes with a slight admixture of bonemeal. This will incite vigorous root-action, the effects of which and the food appropriated will soon be visible in the renovated specimens. Occasionally healthy specimens succumb to intense and prolonged frost. In Col. Drummond Hay's pamphlet, published by the Dundee Horticultural Association, this Conifer is included in the list of those that sustained injury by frost in 1881.

Cropping Vines (A. J. L.).—It is next to impossible to say how many bunches of Grapes may safely be left on a Vine even if, as in your case, the length of the rod is stated. It ought to be obvious to all that one bunch weighing 3 lbs. requires more support than two bunches do that weigh 1 lb. each. Some Vines are more heavily cropped with a weight of a pound of fruit to every foot run of rod than others that have twice that weight. We never consider Vines too heavily cropped that continue producing strong sub-laterals freely beyond the bunches up to the time the fruit is ripe. When the production of such laterals ceases when the fruit is half grown it is an indication that the Vines are overweighted with fruit, however few bunches there are. This, we submit, is a simple test for determining what is a safe crop for established Vines to carry.

The "Queen of Flowers" (Mrs. Milner).—The following is perhaps the passage to which you allude relative to the origin of the above name "in connection with references to the Greeks and Hebrews." It was from the pen of Mr. G. W. Johnson, and first appeared in this Journal upwards of thirty years ago:—"The Rose delightful to everybody, so has it been in all ages and in all countries. It is the *Habetszeleth* of the Hebrews, and among them was regarded as the most grateful of flowers. 'Come, let us fill ourselves with costly wines and perfumes—let no flower of the spring pass us by—let us crown ourselves with Rose buds before they are withered,' are the words attributed to the sensualist in the Wisdom of Solomon. It is the *Rodon* of the Greeks, and, like the Hebrews, they chose it for chaplets at their banquets, and as a gift most acceptable to those whom they loved. Anacreon only gave popular customs a poetic dress when he wrote—

"To make the beverage divine
Mingle sweet Roses with the wine;
Delicious will the liquor prove,
For Roses are the flowers of love;
And while with wreaths of Roses crown'd
Let laughter and the cup go round."

"Sappho joins in adulation of the flower, and our readers will see that the trite epithet of 'the Queen of Flowers,' was first bestowed upon the Rose by that 'Tenth Muse.'

"Would Jove appoint some flower to reign
In matchless beauty on the plain,
The Rose (mankind will all agree),
The Rose the queen of flowers should be;
The pride of plants, the grace of bowers,
The blush of meads, the eye of flowers;
Its beauties charm the gods above;
Its fragrance is the breath of love."

Large Palms and Ferns (R. S. L.).—The names of your plants are *Alsophila australis*, *Dicksonia antarctica*, *Lantana borbonica*, and *Phoenix dactylifera*. We know of no other method of disposing of them than by advertising, stating particulars relative to their size and condition. There are many large plants for disposal now. If you prepare an advertisement and send it to the publisher he will inform you of the price for its insertion.

Watering Azaleas (Subscriber).—We have never yet seen pots so crowded with roots that we could not learn the condition of the soil as regards moisture by rapping them with the knuckles or a wooden mallet, and we have had plants 8 feet high and which had occupied the same pots for ten years. However, it appears you cannot determine the matter by this test, doubtless because you have not had many years of education in the work. There is one thing you must remember—namely, there is far greater danger in underwatering than overwatering such plants as you describe, especially during their growing season. We can ascertain whether the soil in a pot is dry or wet by rubbing the pot with great pressure with the finger. If the soil is wet moisture will in a moment or two follow the friction; if dry, it will not do so. It will probably not be safe for you to rely on this test at once, but you might nevertheless try it and note the results. The simplest method of determining when to apply water throughout the summer will be by rubbing your finger firmly on the surface of the soil. When the soil is not pasty—that is, if it crumbles even in the slightest degree, apply water at once in sufficient quantity to moisten every particle of soil in the pot. If once the soil becomes really dry such plants will sustain injury that may be very serious. Clear weak liquid manure given once a week would no doubt be of great benefit to the Azaleas, but not to the Epacris.

Yellow Sweet Sultan (M. L. G.).—This is the popular name of the plant of which you have enclosed a flower, its botanical name being *Centaurea suaveolens*. It is an annual, and grows freely in fertile garden soil. It is advisable to sow the seed thinly in pots or boxes towards the end of March or early April, raising the plants in a frame, and when large enough transplanting them in other boxes, and thus have them strong and early for planting out in May. They will grow equally well, however, but not flower so early, if the seed is sown in the open ground at the end of April or the beginning of May. We have plants thus raised just commencing flowering. The flowers are very popular for

floral decorations, and were largely employed last year, as they are this, in the arrangements of flowers for the furnishing of dinner tables and the adornment of rooms.

Charcoal as a Manure (H. J. G.).—You ask "if charcoal is of any good for flowers, and if so how?" As you do not say whether the "how" refers to its action or to the mode of using, we answer both questions by a citation from our manual "Manures for the Many." "Charcoal is a most efficient manure to all cultivated plants, especially to those under glass. Heaths, Rhododendrons, Cucumbers, Onions, Roses, Orchidaceous plants, Hydrangeas, Camellias, Melons, and Pine Apples have been the subjects of extensive and most successful experiments. We think no cultivated plant would be unbenefited by having charcoal applied to the soil in which it is rooted. It should be broken into small pieces, about the size of a nut, and, for potted plants, may be mixed in the proportions of one part charcoal to twenty parts earth. If applied to the open ground one-fourth of a bushel may be sown over a square rod or perch, and dug-in just before inserting the crop. The reason of charcoal being so useful as a manure is very apparent. MM. Sennebler, Saussure, and others have demonstrated that plants are rendered much more luxuriant and productive by having carbonic acid applied to their roots than other plants to whose roots no such application was made. Now, charcoal kept moist, as when buried in the soil, slowly combines with oxygen, and emits carbonic acid—in fact, it slowly dissolves. For drainage in flower pots none better can be employed than 2 inches in depth of pieces of charcoal about the size of a filbert."

Soot for Plants (Idem).—Your question on this fertiliser we also answer from the same work, which can be obtained post free for 4½d. "Soot is one of the most powerful and permanent of manures if dug into the soil. It is the volatilised unconsumed portion of common coal. It is thus constituted:—Charcoal, 371; salts of ammonia, 426; salts of potash and soda, 24; oxide of iron, 50; silica, 65; alumina, 31; sulphate of lime, 31; carbonate of magnesia, 2. It is an excellent manure for Peas, Onions, Carrots, and probably all garden crops. An excellent liquid manure is soot mixed with rain water, in the proportion of one tablespoonful of soot to a quart of water, for plants in pots; but for Asparagus, Peas, &c., six quarts of soot to hogshead of water. It must never be applied to plants in a state of rest. It suits bulbs admirably."

Mites in Soil (J. H.).—They are not the same as those referred to, nor nearly so injurious; in fact, unless in great numbers, they do not appear to do any appreciable injury to plants. They have been introduced with the soil, and may be extirpated by applications of clear lime water, or petroleum applied at the strength of half an ounce to a gallon of soft water, and well mixed by violent agitation. The condition of the *Stephanotis* will indicate whether it has sustained any injury or not. If the plant is healthy its non-flowering is not the result of either mites or maggots. The roots are healthy, and there are no nodosities on those before us. If there are nodosities on the Cucumber roots they are the result of *Vibrios*, which ruin the plants. You will find references to two forms of Cucumber disease on page 479 of our last volume, the issue of June 8th, 1882. The root disease is clearly illustrated in our issue of November 1st, 1877, and the number can be had in return for 3½d. in stamps. Numbers containing information relative to the disease that attacks the stems and fruit can also be had; they are enumerated on the page first quoted. The leaves you have sent appear to have been attacked by red spider, and are also more or less scorched. They are quite insufficient in themselves for anyone to determine the precise cause of their present condition. Cannot you make a fire and scorch the soil before using it? This would destroy all animal life, and greatly improve the fertility of the soil.

Pruning Filberts (S. M., Notts).—The fruit is produced principally on the former year's wood, and generally from compact side shoots, the produce of leaders of a short-jointed and mature appearance. Such lateral fruit-bearing branches may be induced in greater abundance by shortening back strong shoots of this character. Thinning-out, however, is one of the principal matters, for unless this be duly attended to the hush will become crowded with worse than useless spray; it will also obstruct the light from the bearing portions, as well as hinder the circulation of air. A great deal of small spray will be produced on the inner portions of the branches; and this, although of the character of bearing wood, is generally unfruitful, and must therefore be mostly pruned away. Anyone who observes the habit of the Nut closely will soon see that the shrubs are most disposed to bear at the extremities of the branches, thus evincing their partiality to plenty of light and air. These, then, are the portions of the tree where the eye must be directed as to fruit-bearing properties. The leaders, however, must not be encouraged so thickly as to cross each other, and in order to prevent the lower portion of the head from becoming naked a good, strong, well-placed shoot may be occasionally encouraged, heading it back in due time in order to keep it producing side branches. After duly thinning away superfluous shoots the principal leaders should be all shortened. As a general rule, we would say, Remove about a quarter of the length. This will cause the tree to produce abundance of side spray, from which in the future spring the fruiting shoots may be selected.

Names of Fruits (J. M. M.).—It is almost impossible to name Strawberries from one or two single fruits and a leaf, even if the fruits arrive sound and fresh; in this case they were almost shapeless, and we can only say the flavour resembles that of the variety Dr. Hogg.

Names of Plants (W. Cranswick).—1, *Lolium perenne* (common Rye Grass); 2, *Festuca duriuscula* (common Fescue Grass); 3, *Avena pratensis* (Meadow Oat Grass); 4, *Triticum flavescens* (Yellowish Oat Grass); 5, *Festuca gigantea* (Tall or Giant Fescue Grass); 6, *Festuca pratensis* var. *elatior* (Tall Meadow Fescue Grass). (W. Alison).—1, *Gymnogramma peruviana* argyrophylla; 2, *Achrophorus affinis*; 3, *Adiantum pubescens*; 5, *A. decorum*. The *Selaginellas* cannot be named except better specimens arrive in a fresh state, and particulars are supplied relative to the habits of the plants. (W. G.).—1, *Caladium esculentum*; 2, *Gymnogramma chrysophylla*; 3, *Caladium Chantini*; 4, *Ananassa sativa* variegata. (Keswick).—The specimen is quite insufficient for identification, as such a scrap must necessarily be by having been wrapped in dry cotton wool, and simply enclosed in a letter. We have many times stated that that is the worst of all methods of sending specimens, as the dry wadding invariably extracts all the moisture from small soft sprays. We shall require a larger specimen to arrive fresh to enable us to determine the name of the plant. (J. H.).—1, *Doronicum pardalianches*; 2, *Sisyrinchium alatum*; 3, *Phlomis fruticosa*; 4, *Erigeron glabellum*; 5, *Conium maculatum*. (R. A. P.).—The Buttercup-like flower is *Limnanthes Douglasii*. The small white flower we cannot determine, as it was much crushed in transit. (F. M.).—*Chrysanthemum segetum* (the Corn Marigold). (W. D.).—*Eryngium amethystinum*. (M. A.).—*Struthiopteris germanica*.

Dead Drone (Clifton).—The cause of the protrusion from the abdomen of the dead drone found in your garden cannot be traced or explained. A very

slight pressure on the sides of drones will often cause like protrusions and instant death. A sparrow or swallow may have caught the drone in its bill and dropped it. If you catch a drone between the finger and thumb and apply a little pressure a protrusion will instantly appear, killing the drone.

Uniting Bees (J. G.).—You ask if it "is advisable to unite the bees of one stock from which the honey has been taken to those of another stock for preservation, and what method should be followed in doing so?" The bees of a honey hive united to a stock for keeping make it very much stronger, and the practice of uniting swarms in autumn cannot be too strongly recommended. In uniting bees it is an advantage when both lots stand next to each other in the same garden. The bees of the honey hive are first driven into an empty hive, fed, and allowed to settle. About an hour before the union be attempted the stock hive should be fed by sprinkling a pint of syrup over the combs and bees of the stock hive. At the end of an hour both swarms are full of glee and indisposed for quarrelling, and thus they are put off their guard. In this state and at this time the hive to receive the bees should be inverted, and the bees of the empty hive cast into it by a violent shake or thump, all placed on one board, and the work will be done in most cases without the loss of a bee. The work is more easily done than described. In the hands of an expert bee-keeper this method seldom fails, but inexperienced men sometimes fail in their efforts to copy this plan, and fighting may result. In all cases it is well to be prepared with some rag or brown paper dipped in a weak solution of saltpetre and dried. A few puffs of smoke of such rag blown amongst the bees thus united so terrifies them that they cast away their fighting propensities and seek safety anywhere. Another mode is to drive the bees out of the stock into an empty one, and cast the bees of the honey hive amongst the combs and let them have full possession for about an hour; then cast the bees back to their own hive. By this method both swarms are placed at a disadvantage, find that they are not at home, and have nothing to defend. When both swarms are driven into empty hives the oldest queen should be destroyed before the swarms are cast together. Some bee-keepers in uniting swarms drive both into empty hives and cast them together on a sheet in front of the hive to receive them, and thus they unite in running into the hive. All the systems now mentioned will answer if the work is well done. Adopt that which you think you can best carry out.

COVENT GARDEN MARKET.—JULY 19TH.

THE continued wet weather has impaired the quality of soft fruit. Prices remain substantially the same as last week. Grapes remain as before, but good samples of Peaches and Nectarines are still in demand.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Grapes	lb.	1 6 to 4 0
Apricots.....	box	1 6 2 0	Lemons.....	case	20 0 30 0
Ditto	"	1 0 2 0	Melons	each	2 0 4 0
Cherries.....	½ sieve	6 0 12 0	Nectarines....	dozen	4 0 12 0
Chestnuts.....	bushel	0 0 0 0	Oranges	100	4 0 6 0
Currants, Black..	½ sieve	5 6 6 0	Peaches	dozen	4 0 12 0
" Red.....	½ sieve	4 0 5 0	Pears, kitchen..	dozen	0 0 0 0
Figs.....	dozen	4 0 0 0	dessert	dozen	0 0 0 0
Filberts.....	lb.	0 0 0 0	Pine Apples, English	lb.	3 0 4 0
Cobs.....	100 lb.	0 0 0 0	Strawberries ..	lb.	0 6 1 0
Gooseberries	½ sieve	2 6 0 0	Walnuts	bushel	0 0 0 0

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	Mushrooms	punnet	1	0 to 1 6
Asparagus.....	bundle	3	0 0	Mustard & Cress ..	punnet	0	2 0 3
Beans, Kidney	100	1	3 0 0	Onions.....	bushel	3	6 0 0
Beet, Red.....	dozen	1	0 2 0	pickling	quart	0	0 0 5
Broccoli.....	bundle	0	9 1 6	Parsley..... doz. bunches	3	0 4 0	
Brussels Sprouts..	½ sieve	0	0 0 0	Parsnips	dozen	1	0 2 0
Cabbage.....	dozen	0	6 1 0	Potatoes.....	cwt.	10	0 0 0
Capiscums.....	100	1	6 2 0	Kidney.....	cwt.	10	0 14 0
Carrots, new.....	bunch	0	6 1 0	Radishes.... doz. bunches	1	0 0 6	
Cauliflowers.....	dozen	2	0 3 0	Rhubarb.....	bundle	0	4 0 6
Celery.....	bundle	1	6 2 0	Salsafy.....	bundle	1	0 0 0
Coleworts..... doz. bunches	2	0 4 0	Scorzonera	bundle	1	6 0 0	
Cucumbers.....	each	0	4 0 6	Seakale	basket	0	0 0 0
Endive.....	dozen	1	0 2 0	Shallots.....	lb.	0	3 0 0
Fennel.....	bunch	0	3 0 0	Spinach	bushel	3	0 0 0
Garlic.....	lb.	0	6 0 0	Tomatoes.....	lb.	0	6 0 8
Herbs.....	bunch	0	2 0 0	Turnips, new.....	bunch	0	6 0 0
Leeks.....	bunch	0	3 0 4				



POULTRY AND PIGEON CHRONICLE.

MAXIMUM PRODUCE OF FARM CROPS.

WE hold the opinion that it is essential to the home farmer that he should understand the limits within which the production of agricultural crops are confined, or in other words how much it is possible to grow of the various crops under the most favourable circumstances of soil, climate, cultivation, and manuring. If this limit is undefined, the question of tillage and manuring must to a certain extent be also hazardous and uncertain; and although this is actually the result in various instances, it may be well, through the fact of certain crops having been extraordinary in those seasons when everything

has been favourable, to understand also as nearly as possible under what condition of the land and other circumstances such crops have been raised, such as the sort and quantity of seed sown. Unless we are assured of the various matters connected with our productions we cannot estimate how much of the success attending certain crops are the result of accidental circumstances over which we may have had little or no control, because, with all the experience which some of our oldest agriculturists possess, we cannot always accept their statements as satisfactory unless we get a full and fair description and detail connected with any unusual result in crops offered to our notice under the head of Agricultural Maxima. We therefore ask our readers to consider how far the greatest crops of any variety of farm produce which we may set forth for their consideration exceeds their own crops.

A comparison may be made of the circumstances attending both the produce offered for notice as a maximum, and the result of practice under somewhat similar conditions of soil, climate, tillage, manure, and variety of production in other respects; and we feel that under such circumstances benefit will arise in various ways which would never, or seldom, occur unless statements of unusual crops had riveted attention to the subject. We are ready to admit that various great products of the farm crops have been generally owing to the concurrence of extraordinary natural circumstances acting on good ordinary farming, rather than to any special effort on the part of the cultivator—that, in fact, they have happened rather than been sought; and we might suppose that these instances of maximum crops were of little or no interest to the home farmer. But we view this as an unwarrantable conclusion; for although they may frequently come unsought, yet they will be found sometimes to be the result of efforts of a new kind adopted by intelligent, practical, and persevering men, and it is only by examination of the circumstances out of which they have arisen that we are likely to find the causes of our ordinary as well as our extraordinary successes. Notwithstanding that some particular instances may at first sight seem of little lasting service, yet it is clearly on the multiplication of them that our expectations of increasing agricultural progress are most reasonably built. It is also plainly observable that it is the good cultivator only who gives full scope to the natural influences when they happen to be especially favourable.

On the ground, then, of the probability of their usefulness, we shall proceed with our instances of agricultural maxima. The following record we quote from an essay published in the Journal of the Royal Agricultural Society of England in 1859, and given by Mr. John C. Morton, the subject being "Agricultural Maxima." The object of the writer has, it is stated, been simply to place on record a number of well-authenticated occurrences of the kind, whether explained or not by such history as is given of them. The first record is a most remarkable history, which has probably never been paralleled, and may therefore be accepted as a genuine agricultural maximum. It relates to the year 1844, and is authenticated by trustworthy eye-witnesses. Mr. William Cubitt of Bacton Abbey, North Walsham, well known in Norfolk as an energetic practical agriculturist, writes as follows:—"I now send you a short history of an extraordinary field of Wheat, and also a communication on the subject from the owner and occupier of the land, George Wilkinson, Esq., whose veracity may be relied on—'This field, situated in the parish of Haisborough, about four furlongs from the sea, contains 5a. 1r. 38p., and is a good loamy soil resting upon a strong subsoil, but sufficiently porous not to require draining, and suitable to every kind of cropping.' In 1843 it was sown with Peas, probably preceded by Wheat. In the autumn it was sown with Spalding Wheat, about 3 bushels per acre. It came up thickly, and in the following spring and during the summer it presented an unusually luxuriant appearance, particularly so when fully shot into ear, so much so that

many bets were made by practical men as to its probable yield, some estimating the produce at 9 quarters per acre. The field was harvested separately, and on threshing yielded 11 quarters 2 bushels per acre, imperial measure. In the same season and upon land almost adjoining, but occupied by another tenant, Mr. Howes, 10 quarters per acre were produced. This gentleman who had occupied land in the parish for a period of fifty years, affirmed that he never before grew anything approaching to such a crop, 7 quarters per acre being the largest crop ever produced previously to 1844." We have further notes from Mr. George Wilkinson, that although his crop of Wheat in 1844 gave 22 coombs 2 bushels per acre, that he attributes this abundant crop to the season, and not to any particular course of husbandry, which was the Norfolk or four-course system. He further sends the average of his growth of Wheat and Barley on his farm of 400 acres for the seven years commencing in 1844 to 1850 inclusive, the Wheat average being 10c. 1b. 3p. per acre, and the average growth of Barley for the same period being 11c. 3p. per acre. It is also stated that on some farms, instead of the strict four-course rotation of Wheat, roots, Lent corn, and Clover, the custom oftentimes was departed from by taking a crop of Peas or Beans after Wheat instead of roots, and then Wheat again, as was the case in the instance referred to.

Mr. John Wilson of Edington Mains, Berwickshire, author of the article "Agriculture" in the "Encyclopædia Britannica," and well known at the period to which we are referring (1824 and 1826) in the north as a most intelligent agriculturist, gives the following instances of agricultural maxima within his knowledge or experience. He states that "About this period, although I cannot exactly state the year, 5 acres were measured off in a field in this neighbourhood of Hunter's White Wheat; and these 5 acres being selected as the best portion of the field, were found to yield 66 bushels per acre—the highest yield that has come within my knowledge." We have to record an instance of a large Wheat crop of more recent growth—viz., in 1880, near to Southampton, produced upon a sharp gravelly soil on a field of 3 acres sown out of Clover lea once ploughed, and sown with 3 bushels of seed per acre, the sort of Wheat being the Club-head Rough Chaff or Velvet Hull variety; the produce was 66 bushels per acre, the grain being of the very best quality and sold at the highest market price. The land is in the occupation and belongs to the Bitterne Manor House estate, the property of Stewart Macnaghten, Esq. Another instance of large produce occurred in 1870 upon land in South Hants, the property of Mr. John Gater of Black House, West End, about five miles from Southampton, and in his own occupation, in which case the produce was 9 qrs. and 2 bushels per acre of a variety of Wheat called Morton's Red-strawed White. The land is a strong loam on clay but well-drained, and Wheat was drilled on small five-turn ridges after a summer fallow preparation.

We have to record one more full crop of Wheat, and said to have been the largest crop ever recorded in the district where it was grown, which contains some of the most fertile land to be found in the county—viz., the parish of Titchfield in South Hampshire near to the tidal rival Solent, the crop being grown on Fish House Farm, in the occupation of Mr. George Gray, one of the most practical and best farmers of the district. The soil on which the crop was grown is a hazel loam on gravel; and the Wheat, which was of the variety before named called Dwarf Club-head Rough Chaff, was sown $2\frac{1}{2}$ bushels per acre out of Clover lea, the result being a crop of 19 sacks and 2 bushels per acre. This, however, was in the splendid season of 1868, a year of the greatest general abundance we can recollect, for the quality of the Wheat and weight per acre places this crop in the first position in our estimation, because there is no variety of Wheat more esteemed by the miller for producing the highest class of flour than the

Rough Chaff White. We cannot help comparing this crop with that in the first case we have recorded grown by Mr. G. Wilkinson; for although his crop was 22 sacks and 2 bushels per acre of Red Spalding Wheat, that is a variety which we know perfectly well gives a large bulk of straw, but the grain is coarse and weighs light, and is considered by the millers quite a secondary class of grain. We have no desire, however, to detract from or depreciate any crop more than it deserves, but we are bound to state the practical truth in the interest of and for the information we wish to impart to the home farmer; and must conclude with the observation that in the markets which we usually attend the Spalding Wheat is not worth so much by 4s. per quarter as the Rough Chaff White.

[On page 47 last week, second column, eighth line, the word "equal" was inadvertently inserted; and in the following line the sum £173 should read £6173, the most important figure having been accidentally omitted.]

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This has lately been attended with much disappointment, for no sooner has the land become dry enough for beneficial culture either with the plough or scarifier than the heavy storms which have prevailed in nearly every district of the kingdom have prevented sufficient work being continued on the fallows, whether in preparation for late root crops or for Wheat; and this is a very serious drawback in agricultural pursuits, as the fallow land generally was at the commencement of the spring foul and encumbered with couch and black grass. Harvest, too, is fast approaching, and the necessary work must be anticipated and provided for, such as having the reaping machines, horse rakes, and mowing machines examined and put into proper repair. All other implements, such as the elevator, waggons, and carts, must be examined and made fit and firm for the work which is now fast approaching, for in travelling in a southern county on the 8th ultimo we noticed winter Oats quite ripe enough for cutting, and Rye also not far behind in ripeness. The constant rains seem to have not only prevented effectual horse-hoeing, hand-hoeing, and singling of the Mangolds, Carrots, Cabbage, Swedes, and early Turnips, but has also wonderfully increased the growth of weeds; and on noticing this we were forcibly reminded of the difficulties we had to contend with in some very wet seasons when neither horse or hand-hoeing could destroy the weeds in extremely wet and sunless weather, especially in the years 1853 and 1860, in both of which we adopted the plan of women following the hand-hoers closely and picking up the weeds by hand and carrying them in spread aprons to heaps at certain distances, where they perished or were removed when the root crops were disposed of, either by carting off or feeding off by sheep. Having stated thus much we are bound to notice the result of this practice, for in fact the land was far cleaner after being once hoed and hand-picked than it was where it had been hand-hoed three times without hand-picking. In the ultimate result, where hand-picked the land was as nearly cleansed as possible, whereas that only hand-hoed was covered with weeds. If we recollect rightly two women followed each hoer, receiving 1s. per day as wages. There can in consequence be no question which work was done at the least cost. We also remember that the gentleman who wrote the essay in the Royal Society's Journal upon the farming of the county in which the farm was situated, stated that it was the most successful practice of destroying weeds and cleaning the root crops that he had witnessed during his travels. Unless the weather for the harvest should prove very bad the White Victoria Oats in the early districts will soon be ripe, so that the Turnip seed sown after them will be got in during the month of July with great advantage, if the seed is sown daily on two-thirds of the land, as fast as the crop is cut, tied, and set upon on the other third portion of the land. If, however, the Oats should have been seeded with Red Clover and grass in the spring, and the corn is cut a little higher than usual so as to leave the Clover and grass plants intact, a good crop for cutting as green fodder may be obtained in the autumn months, for we recollect perfectly well having cut up full crops of Clover for cattle and horses down to as late as the first week in November for five consecutive seasons.

Hand Labour.—There is much to be done by manual labour properly directed on the farm, although hindrance may have occurred through showery weather, especially when the ricks of hay, &c., are thatched by one of the farm labourers, as we venture to say that they ought to be. It was always our practice to retain a good thatcher amongst the staff of labourers usually employed on the farm, in order that as soon as thatching is required either of hay or corn ricks it may be done at once, instead of waiting the time and leisure of a journeyman or professed thatcher; and he fills up his time together with other men in drawing and piling straw in readiness for use when the weather may be showery and ill adapted for other farm work. This has always been our mode of management; we can recommend it to the home farmer with great confidence as being well worth his attention. All the pastures or park land upon which cattle

have been fed should have the tufts of old grass now mown down, which will greatly favour a regular growth of aftermath.

Live Stock.—All kinds of sheep and young cattle are extremely dear, and we must again call attention to the policy of rearing all the cattle we require in order that the home farmer may have the full advantage, not only of cattle grazing, but of breeding and rearing likewise. In most cases the same may be done with sheep stock. There are, however, some exceptions which require notice, for we think at the present moment in various midland districts, where a great scarcity of sheep exists in consequence of the losses by fluke rot during a few years past, it may be advisable, where the turf is good and where a bullock can graze till fit for slaughter without artificial food, it requires consideration as to the advantage of feeding sheep as well as cattle on the best pastures, for the sheep certainly will eat out the finest and choicest herbage, such as White Clover, leaving the longest and coarsest grasses only for the cattle, and, in our opinion, depreciating the value of the bullock food, and at the same time running the risk of rotting the sheep. Store cattle of the one year may graze on the poorest pastures and be growing into a condition for feeding off the best pastures for beef the succeeding year, and therefore dispense with the feeding of sheep altogether. Then if we take the marshland districts of certain eastern counties the question becomes almost reversed, for in these the sheep may be kept for grazing without any bullocks at all, and ten or twelve sheep per acre may be thus sold to the butcher every year, because the generality of the marshlands reclaimed from the sea originally do not endanger the health of the sheep by the fluke rot. Still, on those farms not well adapted for a breeding flock the best plan is to buy lambs in the autumn and put them out to winter feeding on roots, &c., in the arable districts, and on farms in certain districts this is done by a customary payment according to the season, and the lambs wintered on dry arable land at so much per head, returning to the occupier of the marshland at a stated time in April, or as soon as the grass on the marshes is equal to the maintenance of the stock in that condition, which, after being shorn, they may be sold in the markets for mutton, but only the long-woolled breeds of sheep are used in this way.

ROYAL AGRICULTURAL SOCIETY'S SHOW.—The awards for the best cultivated farms were announced at the General Meeting of members, when it was found that the first prize of £100 was awarded to Mr. J. J. Ratcliff, The Priory, Beech Hill, near Reading; and the second prize of £50 was awarded to Mr. Geo. Adams, Pidnall Farm, near Faringdon. The Judges recommend that an extra prize of £25 shall be awarded to Mr. Jenkin Davies of Wickeroff Farm, Englefield, Reading. We are informed that all the above competitors used Messrs. Suttons' seeds. The Prince of Wales visited Messrs. Suttons' trial grounds during the Show, and expressed the gratification that the inspection had afforded him.

POULTRY AND PIGEONS

CROSS-BRED TABLE POULTRY.

CONTINUING our remarks from page 48, we come to the third cross. The Dorking-Game cross has long been known. Before the days of Asiatic importations it was to be seen in many a farm-yard where a thrifty henwife had tried to improve her stock; the hens were known as excellent mothers, and generally layers of larger eggs than either of the parent races. The cross is still a common one, especially in the establishments of country gentlemen, where the poultry run in the park or the woodlands about the gamekeeper's cottage, and where the cuisine is good. Dorking-Game chickens are very plump, and their flavour gamy and excellent. We decidedly recommend that the male bird should be of the Game race; the Game cock is the traditional model lord of the yard, hardy and vigorous, and considerate for his wives; Game hens are quarrelsome and spiteful to each other's families, while Dorkings are generally peaceful. As to the kind of each breed to be crossed, much depends upon the fancy of the breeder. If he desires birds of rich red, yellow, and brown hues a Black Red or Brown Red cock may be crossed with Dark Dorking hens; if soft Silvery-Greys, a Duckwing cock should be procured and Silver-Grey Dorking hens; if pure white, a white Game cock and white Dorking hens, though curiously enough the chances are that their produce will not be pure white, but show dark feathers here and there, and yellow or red bands in the wing. One who likes peculiarity and distinctiveness in his poultry yard may gratify it by crossing a Red Game cock with Cuckoo-Dorking hens; the male produce are often very handsome, with a kind of golden cuckoo hackle. If white legs are specially desired it should not be forgotten that both White Game and Black Reds are procurable

with white legs. The latter are now somewhat rare; they are the old Knowsley strain, which still is prized by some amateurs, though the exhibitor would have little chance of winning with them. The cockerels of this cross should be killed early, for they naturally inherit some of the spirit of their paternal ancestors, and terrible frays may occasionally take place among a party of them. The pullets prove the best of mothers, but cannot always be trusted near the chickens of another hen.

The Dorking-Poland cross is another long known, but seldom tried in these days. Whether there once was a distinct lark-crested breed of fowls we have before discussed; however this may be, there certainly have long been seen in well-cared-for farmyards hens which show traces of Dorking blood in small fifth claws, and of Poland in small tufts. They are almost invariably good layers. Next to the Dorking we believe, possibly with the exception of La Flèche, Polands to be the best table fowls. Their bones are small, their breasts round and plump, and their flesh delicate; they are, too, always ready for killing. All these good qualities, combined with greater size and quicker growth, are to be found in their half-bred produce when the second parent is a Dorking. We remember in the class for table poultry at the Birmingham Dairy Show of last year to have seen a very pretty pen of chickens from the Patshull yards, a cross between Silver Polands and Cuckoo-Dorkings. They were short-legged, round-breasted, and small-boned, and just such as we should fancy for the table; they were very pretty too.

Any one of these four crosses will, we believe, be found a useful one. It must not be forgotten that for the production of strong and vigorous chickens robust and vigorous parents are necessary. They must not, too, be too numerous a troop. One cock and four or six hens on a free range will produce a stock large enough for most establishments. If the cock be Game, still more hens may be allotted to him. If, however, chickens for market or a very large household are required in numbers beyond the natural produce of one pen, two or more breeding pens should be made up separately. It is seldom advisable to let two cocks run with a double harem of hens.—C.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held on Wednesday, July 12th, at the Charing Cross Hotel. There were present Messrs. S. Lucas (in the chair), T. W. Anns, R. A. Boissier, A. Comyns, and C. F. Montresor.

The following new member was elected—Mrs. Herbert Philips, Oak House, Macclesfield.

SHOWS UNDER CLUB RULES.—The Secretary reported that Leek, Wolverhampton, Caistor, Hanley, and Lamberhurst Shows are to be held under Poultry Club Rules, and subscriptions were granted to the funds of the two first-named Shows.

The next meeting was fixed for August 4th at the Charing Cross Hotel at 2 P.M.—ALEX. COMYNS, *Hon. Sec., Poultry Club, 47, Chancery Lane, London, W.C.* July 17th, 1882.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. July.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	9	29.626	60.7	54.5	S.W.	58.2	70.6	51.8	120.2	46.6	0.128
Mon.	10	29.754	60.9	53.8	S.W.	58.6	68.5	48.6	123.6	45.6	0.954
Tues.	11	29.625	55.4	53.0	E.	58.2	64.8	51.2	84.3	50.4	0.308
Wed.	12	29.774	60.3	55.8	N.W.	58.2	70.7	52.8	118.3	53.0	0.036
Thurs.	13	29.923	57.8	55.3	S.W.	59.0	64.5	54.4	123.7	52.4	0.010
Friday	14	29.661	64.1	59.4	W.	58.9	73.6	57.3	128.4	55.5	0.040
Satur.	15	29.500	62.7	60.8	S.E.	61.0	71.6	61.0	116.4	58.2	0.050
		29.695	60.3	56.1		58.7	69.8	53.9	116.4	51.7	1.526

REMARKS.

- 9th.—Heavy showers, with bright intervals.
 10th.—Fine bright morning, very heavy showers in afternoon.
 11th.—Rain during day, fine evening.
 12th.—Generally fine and bright, shower at 2.45 P.M.
 13th.—Showery at first and windy, afterwards fine and bright.
 14th.—Slight showers at first, afterwards fine and bright.
 15th.—Wet morning, fine afternoon and evening.
 Temperature again near the average, rainfall much in excess.—G. J. SYMONS.



27th	TH	
28th	F	Quekett Club at 8 P.M.
29th	S	
30th	SUN	STII SUNDAY AFTER TRINITY.
31st	M	
1st	TU	
2nd	W	Oxfordshire Horticultural Society.

LILIUM GIGANTEUM.



THE demand for this grand Lily continues so great that its price is still beyond the means of the more humble class of gardeners, otherwise it might be a common ornament of cottage gardens, as there is nothing in its requirements which makes its cultivation difficult. It is to be hoped that so many generations of seedlings are now in the course of development, that in a few years it will become common. Raising plants of it from seed to flowering size requires patience—more patience than the writer possesses, as about ten years is said to be required for the work. The process has often been described, and I believe requires but little skill. A plant which flowered and ripened seed out of doors last year in my garden, but which was grown in a pot, produced eleven flowers on a stem 9 feet high, and ripened eleven pods of seed. The seeds are so charmingly arranged in rows for counting that a very easy process of multiplication gives the total, and I distributed amongst friends who I thought would appreciate them between seven thousand and eight thousand seeds from this one plant. The bulb which has produced a flowering stem dies, as is well known, after flowering, but produces about five or six offsets, which are from three to four years, according to circumstances, before they flower. Early flowering—I mean as regards age, not season—is not to be desired in *L. giganteum*. The more that luxuriant growth is encouraged by rich deep soil and by spring watering, the longer deferred and the finer when it comes the flowering will be.

In the autumn of 1878 I bought what was sold as a "flowering bulb" of *L. giganteum*, then about as large as and not unlike a large-sized bulb of *Amaryllis Belladonna*. I planted it at once in a Lily bed made on a raised terrace, and backed by a wall at the north end, containing good peat 4 feet deep, and planted with *Ericas*, *Andromedas*, *Skimmias*, and such-like dwarf evergreens. I have dressed it annually with leaf soil, and perhaps a little very old decayed manure, and with soot to keep off the slugs. For three years the leaves grew larger, dying down late in summer, but this year a huge stalk appeared in April, being, I should say, more than 15 inches round at the base, and when it had grown upwards of 10 feet high it opened twenty-three flowers the first week in July, all equal in size. One of these was knocked off—my gardener suggested by a jackdaw settling on it, but more likely by a gust of wind. Five feet of the stalk with the other flowers (as I was only at home for one day) I cut off and took to a village flower show near Chester. The cutting was no easy matter; the stalk is hollow, but as tough as a green Bamboo, and I had to

notch it round with a large and sharp garden knife for some depth before it would break off. I had my keeper to carry it at arm's length in front of him, and luckily there was no wind, as it would not go inside a carriage, and of course it produced a sensation at the Show. The stalk is so strong and the rooting so firm, that though the westerly gales find out my Lily beds, and I am obliged to tie *L. pardalinum* from the time it is a foot high to the very top of the flowerstalk, I never thought of giving any support to *L. giganteum*. I have given the history of this specimen from first to last, because rules for the general treatment of the plant may be deduced from it.

I have often heard of two places in the kingdom where *L. giganteum* has been established in the shrubberies in quantity, and grows almost without cultivation. They are Merton Hall in Norfolk, belonging to Lord Walsingham, and Gordon Castle in Morayshire, the Duke of Norfolk's. On looking at the rain chart of Great Britain it will be seen that the rainfall of both these places, especially the former, is below the general average, and both have well-defined seasons and warm summers. Dry winters, late springs, and genial and even summers afford conditions favourable to the growth of most Lilies. These conditions, however, are not to be found in Cheshire, where the wet continues all the year round, and where a month of winter and of summer—last August and last January for instance—might often change places without anything very abnormal in the temperature or the rainfall. Hence the cultivation of Lilies in the open air in Cheshire meets with very partial success, and the frequent checks with which the plants meet in their growth encourage the disease called "spot." Still in the same bed in which the leaves and buds of *L. auratum* and *L. Humboldti* annually decay with spot before flowering, *L. giganteum* never showed the slightest indication of spot at any stage of its growth, and never took to any unkindly ways. I now have a good stock of offsets in different degrees of forwardness, but, as I said above, I am not anxious to hurry them into flower.

As far as I can judge no choice Lily seems to have a better constitution or to be more easily managed than *L. giganteum*, provided it has a rich, deep, but not too heavy soil, and a sheltered situation. Shelter it must have, or the large fleshy leaves would be torn to pieces, and the long petals of the flowers broken off by high winds. Still, I cannot see why the plant should not in time find its way into every cottage garden which supplies the mentioned conditions. Judging from what I see both in nurseries and in private gardens, I believe there are millions of home-grown seedlings scattered over the country in a more or less forward state, and are destined to produce a new feature in gardening.—C. WOLLEY DOD.

THE LONGLEAT VINES.

BUT for the fact that numbers of readers may be expecting me to say something now that Mr. Taylor has told us so much about his Vines I would not write a single word, for although the Editor left the question of whether it is better to restrict or give latitude to young Vines, the subject under Mr. Taylor's hand has broadened till it embraces everything in the cultivation of the Vine under glass. Under these altered conditions very little remains for me except to compliment Mr. Taylor on the able way he has acquitted himself of the self-imposed task, and to congratulate the readers of the Journal on the nature of the information which has been placed at their service

Not everyone would have so fearlessly laid themselves so open to attack from critics inclined to be adverse and unmerciful. It is very easy to prophesy after the event, and even the most ignorant could say, "I could have told you so;" but those who have struck out into "fresh fields and pastures new" know very well that events not calculated on or even dreamed of sometimes occur. Those who keep straight ahead in the beaten paths may keep pretty free from blundering, but they will hardly make discoveries or leave the world wiser than they found it. It is different with the seeker after better methods. He will make mistakes, even though endowed with more than average intelligence, and be laughed at by those who have less. To make no blunder proves nothing; to make many may prove, not that the perpetrator is incapable, but that he is not content, and is desirous of marching a step beyond the point reached by others. To be sure, blundering is not of itself a sign of incapacity, though incapables certainly blunder most, and are most ready to lay blame when only praise is deserved. This much we have said, not in defence of Mr. Taylor, who needs no such defence, but rather for the purpose of exploding an erroneous way some people have of judging others.

That Mr. Taylor did make one or two mistakes is, in fact, rather comforting to others, myself among the number, for really one is apt to feel incapacitated when mistakes occur in his own hands, and when he imagines nobody else would have been so stupid. Indeed, I am not sure if greater profit would not result if we were all to chronicle our mistakes and say less about our successes. Mr. Taylor has combined the good of both systems, for he has not only told us when and how he failed, but also by what means he secured success. The consequence of this is that a very large number of readers must have derived no small amount of benefit from what he has written.

Months ago, just at the outset of Mr. Taylor's description of the Vines at Longleat, the printer made one mistake by leaving out at the end of a paper "to be continued," and I made another by supposing Mr. Taylor had said all he intended to do, so a paper about my method of manuring Vines and the reason why was posted to the office as a finisher to what I had before written on the subject of Vine culture. I suppose that, now Mr. Taylor has really finished, it will see the light when the pressure becomes less severe on the space, and perhaps it will be found that, to some extent, I have supplemented what has appeared. I forget exactly what I wrote, but, if not mistaken, there are some analytical tables in it that will, perhaps, help even Mr. Taylor, for there cannot be any doubt but that when we know just what Vines take up we are guided in our efforts to supply those wants.

Pending the publication of that paper I will in the meantime confine myself to making a few remarks in a friendly way on what Mr. Taylor has written. To go over a tithe of the ground is more than I shall even attempt, but there are a few points that may be profitably noticed, and to these attention shall now be called.

The first is the matter of concrete bottoms. Like Mr. Taylor, I have come to the conclusion that these are really a mistake doubly, unless in such special cases as Longleat for instance. I also think with him, that first-rate Grapes could be grown on ordinary soil with very little preparation, and decidedly think it a mistake in nine cases out of ten to make artificial borders, as I believe these are often inferior to the natural soil. I am also unable to comprehend how it is impossible to give Vines all they need from the surface and to keep them in health indefinitely by such means. First-rate cultivators maintain the opposite, and their opinions must be listened to with respect, but we may be pardoned if we entertain doubts, of which the above is one.

Mr. Taylor's preference for applying water by cans in order to know exactly the quantity that is applied is scarcely justifiable, for it is surely an easy matter to calculate how much water will pass through any given pipe at any given pressure during any given time, and there is really a great difference between allowing water of itself to run where it is wanted, and paying gangs of men to apply it. It is to be hoped that those who contemplate erecting ranges of glass

will not be led into thinking that pumping water is better than allowing it to run of itself. As one whose arms have ached with water-carrying, I would urge upon proprietors to save much labour, and consequently money, by having pipes and hose and a proper supply of water from a high level if possible.

I cannot say I am enamoured of Mr. Taylor's waste of space by having his Vines so far from the glass. It is a mistake not to allow plenty of room between the glass and the trellis, but your correspondent has gone to the other extreme. As for the advantage of air-giving, the system of admitting air at the front only is, I hold, radically wrong; it is much better to admit it at as many small openings as possible. Neither do I think Mr. Taylor's elaborate system generally applicable. When it can be carried out as he advises nothing can be said against it, but doubtless hundreds of your readers are quite unable to adopt any such system of shutting and opening, and opening and shutting, to suit every passing cloud. Those who make compromises, and on blinking days have less ventilation than they would do were the sun to shine uninterruptedly, and more than if it were not to appear at all, find their system answer very well, and that a little air left on all night is a good plan, saving the Vines from being scorched if ventilation should be forgotten for an hour or two on a light summer morning. When at least one responsible person is within running distance of the vineries, closing when dull and opening when bright, is right enough, but another plan has to be adopted under different conditions.

I fear Mr. Taylor will look upon me as a "barbarous Turk" when I tell him that the last Vines I raised for planting had the points of the strong roots deliberately pinched off, and he who was so careful not to trim one will not agree with me when I say that such is of decided benefit by causing a multitude of fibrous roots to form instead of one long fleshy thong; but if he objects, I will question his consistency, for he, too, objects to fleshy roots, and he, too, prefers fibry ones. If I err it is in good company, and more than one successful man has practised it.

The question of how far young Vines should be allowed to grow in their initial stages should, I think, be kept distinct from the one of how much young rod should be left at pruning time, although in the discussion which preceded Mr. Taylor's papers, and also in his papers, they were confounded. After reading what Mr. Taylor has said and thinking the matter over, I am inclined to think that cutting down young canes to within a few inches of the ground is a mistake—not for the same reasons urged by Mr. Taylor, however—but I am not at all convinced of the propriety of restricting their growth to about 10 feet. Mr. Taylor says, possibly with truth, that growth made late in the season or after July cannot be properly ripened. No matter what date we fix upon as the proper time for stopping—we would probably agree on that point—I submit it is only a question of dates and not of length of Vine rod at all. If I have 10 feet of Vine rod made and stopped by the 1st of July I am unable to see that it makes any difference whether there is another 10 feet below that of the same or the former year's growth, for each foot will depend on the conditions to which the whole is subjected, be the whole 10 or 20 feet. The difference consists in the time lost or saved. As for cutting down, perhaps the best rule would be to leave as much as could be induced to break into enough furnishing spurs; and, but for the supernumeraries in Mr. Taylor's way, I have read him wrongly if this, or something like it, is not what he would have practised.

I am quite at one with Mr. Taylor about the scraping, peeling, and painting with nasty mixtures to which Vines are so often subjected, because it has been the custom time out of mind to do so. There can be no doubt of his system of stopping and pinching being the right one. Rubbing off growths that are not wanted just as they appear, and stopping growths by merely picking out the smallest points, is very much to be preferred to allowing growths to utilise sap, to half smother permanent growths and leaves, and then to be broken off by the yard.

Perhaps the most valuable part of Mr. Taylor's experiments was his attempt to do without lime. Far too many try that.

True, they apply plenty to begin with, but the manure and water applied have the effect of making what is given very quickly disappear. If Mr. Taylor has impressed on every Vine-grower in the country that a little lime must be given periodically to Vine borders, or it will be useless to give anything else, then he has added tons of fruit to the future annual produce, and an incalculable sum of money from being spent on new borders, and saved many a heart from aching.

Your correspondent has applied the best manure without a doubt—a manure quite comparable to the generally employed guano; and if everybody can be made to understand that, money may be kept at home instead of being sent abroad. Money is draining away from the country in many directions that there is no necessity for. Mr. Taylor's example, and especially the result of the practice, will stop some of it. Until I see what is in the paper which is now in the Editor's hands I will say no more, but only point out that, as the main substances in bones are abundantly present in the manure used by Mr. Taylor, the bones may be saved. If anything be wanted I should say it was potash. Possibly the other paper will make that apparent.

In conclusion, let me hope Mr. Taylor will not be treated as he has treated other writers. He has, he says, never read an essay on Vine culture, and laid down the only book he ever took up on the subject whenever he found that he could not agree to all that was in it. Of all Mr. Taylor's mistakes this was the greatest, and it might be worth while for him to read some even yet, if for no other purpose than finding out that he is not so unorthodox as he imagines.—SINGLE-HANDED.

I HAVE read with great interest Mr. Taylor's history of the Vines at Longleat, and now he has finished it I desire to thank him most heartily for the valuable instruction I have gained by studying it from beginning to end. I think we ought to be very grateful to him for so much valuable information.—A YOUNG GARDENER.

THE ROSE ELECTION.

BOTH in print and to myself privately the electors of 1881 urged the propriety of separating the Teas and Noisettes from the Hybrid Perpetuals. I promised that the subject should be attended to; I therefore now put forward the plan for this year's election. As regards Teas and Noisettes, placing the lesser first, the question I ask is the following:—Name what you consider in your own experience of their growth the best twenty Teas and Noisettes for exhibition purposes. Distinguish by some mark the best ten.

As regards other Roses the question is—Name the best forty-eight varieties of Roses (excluding Teas and Noisettes) for exhibition purposes, as tested by your own experience. Distinguish by some mark the best and second best twelve.

This election will be of more importance than any of its predecessors, as it will proceed strictly on the lines of the catalogue of the National Rose Society. The following Roses will therefore be considered similar, or at any rate "too much alike." I, as returning officer, will permit the vote to be given to either variety, and will tabulate the results, but it must be distinctly understood that naming both will entail much extra trouble on myself, and perhaps disqualification on the voter.

It will also save trouble to all if intending voters, who must be prizetakers at National Rose Society exhibitions or frequent prize-winners at local meetings, would write to me for a form to fill up.

"TOO MUCH ALIKE" ROSES.

TEAS AND NOISETTES.

{ Adam	{ Madame Bravy
{ President	{ Alba Rosea
{ Chromatella	{ Josephine Malton
{ Cloth of Gold	{ Madame de Sertot
{ Devoniensis	
{ Climbing Devoniensis	

HYBRID PERPETUALS, &c.

{ Charles Lefebvre	{ Marie Rady
{ Marguerite Brassac	{ Comtesse de Choiseul
{ Paul Jamin	{ Maurice Bernardin
{ Duchesse de Caylus	{ Exposition de Brie
{ Penelope Mayo	{ Ferdinand de Lesseps
{ Eugénie Verdier	{ Sir Garnet Wolseley
{ Marie Finger	{ Mons. Boncenne
{ Maréchal Vaillant	{ Baron de Bonstetten
{ Avocat Duvivier	{ Prince Camille de Rohan
	{ La Rosière

All lists of votes must be returned to me at latest by the last day in August, and the result of the poll will appear in the *Journal of Horticulture* in October.

It is also necessary to remind all electors that the Hybrid Tea Roses cannot be classed amongst the Teas and Noisettes.—JOSEPH HINTON, *Warminster*.

BIRMINGHAM ROSE SHOW.

THIS Show was held on Thursday the 13th of July in the Aston Lower Grounds, about two miles from the centre of Birmingham. The public expected to find a larger collection of Roses staged, but owing to the bad weather, which was very general throughout the south, west, east, and midlands, Messrs. B. R. Cant and F. Cant of Colchester; Messrs. Keynes, Salisbury; Messrs. Davison & Co., Hereford, telegraphed the previous afternoon to the effect that the rain, and in some of these districts the hail, prevented them from finishing the cutting of their blooms. Doubtless, too, Manchester Show on the following day, and Wirral on the Saturday, had something to do with the smallness of the Show. If, however, it was a somewhat poor Show as regards quantity, the public were rewarded by the excellent quality of the Roses. The colour was excellent, and in size, form, and substance both amateurs' and nurserymen's exhibits were good. It was most interesting to see Roses, many of which were fit for any stand, grown within two and three miles of the centre of Birmingham. We have been taught that it is useless trying to grow Roses in smoke, but it is not so. Mr. Griffiths and Mr. Rickards of Edgbaston staged blooms of most excellent quality; but I must now give the results.

Nurserymen.—For seventy-two single trusses Messrs. Paul & Son, Cheshunt, were first; Cranston's Company a very close second. In the first collection I noticed as very good, François Michelon, Marie Baumann, Duke of Edinburgh, Beauty of Waltham, Capitaine Christy, Horace Vernet, Madame Eugénie Verdier, A. K. Williams, Annie Wood, Le Havre, and a very excellent White Baroness. In Cranston's Company's collection there were superb blooms as follows:—Comtesse d'Oxford, Countess of Rosebery, Alfred Colomb, Mrs. H. Turner, glorious colour; Emilie Hausburg, and Royal Standard so called, but without a doubt another Emilie Hausburg; Lady Suffield exceeding pretty, and A. K. Williams. For thirty-six trebles Messrs. Paul & Son were again first, and Cranston's Company second. In Messrs. Paul's stand, Général Jacqueminot, A. K. Williams, H. Vernet, Duke of Teck, and Duc de Rohan were grand. While the second-prize stand had very well represented, Emilie Hausburg, Charles Darwin, Mrs. Jowitt, Abel Carrière, magnificent; Mons. Eugène Delaire, a very distinct new dark Rose, not large but colour very good; and Mons. Noman. Twenty-four trebles, Cranston's Company were first, there being no other entry in this class.

The classes open only to nurserymen residing in the three shires of Warwick, Worcester, and Stafford, Messrs. Perkins & Sons of Coventry staged some very good Roses. In the open classes they would have run the larger nurserymen closely. In the twenty-four single trusses this firm exhibited a truss of Abel Carrière consisting of a very large and perfect bloom surrounded by no less than six buds. In this class Mr. F. Perkins of Leamington was second, and Mr. Wm. Bryant, Rugby, third. In the twelve trebles and twelve singles the same order was observed.

Amateurs.—For thirty-six singles Mr. Whitwell of Darlington was first with a stand of very superior blooms to that which won the challenge trophy at South Kensington on the 4th inst. These thirty-six glorious blooms were in the opinion of the Judges quite equal to the stands staged in years past by Messrs. R. N. G. Baker and T. Jowitt, "the great twin brothers." Certainly Mr. Whitwell is to be congratulated upon his success; every bloom was large, not one coarse. If it rained and hailed elsewhere it could not have done so at Darlington, for Mr. Whitwell's Madame Lacharme was the finest I have seen for many years. Where all were so good it seems invidious to name the best, but these were Annie Wood, Alfred Colomb, Charles Lefebvre, Duke of Edinburgh, Capitaine Christy, and Paul Neyron, this last quite round and not coarse. Mr. Whitwell also showed very good treble blooms of this Rose. His advice is as follows with regard to this variety, "Cut young and only from cut-backs." Mr. J. Davis, Salisbury, was second in this class, and Mr. Parnell, Rugby, third.

In the class for twenty-four singles Mr. Whitwell was again first, Annie Wood Annie Laxton, Alfred Colomb, and Marquise de Castellane being his best blooms. He was followed as before by Mr. Davis and Mr. Parnell. Again in eighteen trebles the Darlington hero was to the front, but he had a close fight this time, Mr. Pemberton of Havering-atte-Bower, Romford, contesting point by point, and had it not been for a very bad treble indeed of Star of Waltham he would have been equal with Mr. Whitwell.

The local classes were very well represented, the prizes being generally divided between Mr. Griffiths and Mr. Rickards, though Mr. Griffiths had the largest share.

It seems a pity that such a central situation as Birmingham should not be the chosen spot for the National Rose Society's next provincial show; but a much wider extent of energy, liberality, and love for the Rose must exist there before any really successful show can be held. Birmingham used to have an excellent show, and, as

history repeats itself, so the time will come again.—J. A. W., *Alderminster*.

CHISWICK TRIAL PEAS.

IN examining the above many were noticed as being far behind the best kinds now in commerce; in fact, a Pea must be very good to gain a place in such company as Telephone, Pride of the Market, Stratagem, John Bull, or James' Prolific. There seems little opening for improvement either in dwarf or tall kinds; but this was said before the above were sent out, and in a few years these grand varieties may be, and we hope will be, eclipsed. From observation many of those on trial appeared to be more like selections from other kinds obtained by chance than the results of a carefully pursued course of crossing with the best types in commerce.

There is yet something to be gained that will combine the size of Stratagem with the rich flavour of that old gardeners' friend in need *Ne Plus Ultra*. Maclean's Premier is an excellent Pea, but the three consecutive bad harvest seasons have caused it to be scarce, or this would make a good parent. Again, white Peas have very little chance against blue or green-seeded Peas, and such must sooner or later go out of culture. Gardeners are rapidly advancing in knowledge and appreciation; the Knight's Marrows are already things of the past, and consumers are not, and cannot be expected to be, satisfied with Blue Scimitars.

There has been a great advance in early dwarf wrinkled Marrow Peas; but, except in favourable years and in suitable situations, they are not to be depended on for winter sowings. What with decaying in the ground, to which round Peas seem least liable, and the ravages of birds and slugs above and mice below ground—for they seem to prefer the sweeter foliage of the wrinkled kinds—the rows are frequently scanty; and this may account for the demand yet in vogue for Ringleader, Sangster's No. 1, and such small-shot Peas, which after all require less attention and do fill the basket and fill it early, though they ought to give place to Emerald Gem and William the First. The latter is not yet fixed in character, but is a very fine first early, and the true stock would be a good parent to work on to obtain a first early green round hardy Pea. Dean's Dwarf Marrow and Turner's Emerald are really good earlies; but American Wonder is so short in the haulm as to preclude its coming to the fore, although it looks well when cooked.

Veitch's Perfection is yet grand when well grown, and is desirable in point of flavour; but may yet be improved upon, for the fault is that this and Climax, Eugénie, Day's Sunrise, and other 3 to 4-foot Peas do not give pods full to the end, and do not give a fair return, except under favourable circumstances. Premier would make a good cross with this section.

I venture, therefore, to indicate a few different lines of work for hybridisers, and, as in breeding cattle or poultry it would be madness to start with an inferior stud, let raisers get the best to start with. Say try for

First, a round-seeded early green Pea with large pods—one that will withstand our winters, and be in advance of Dean's Dwarf and Blue Peter.

Second, a 3 4-foot Pea that shall combine the flavour and appearance of *Ne Plus Ultra* with the general habit and size of Stratagem.

Third, a Pea of the Veitch's Perfection style and flavour that shall fill out its pods thoroughly.

Fourth, a tall variety that shall give the enormous peas of Hays' Blue Mammoth, which rarely exceed five or six good peas in a pod, combined with the colour and full pod of the *Ne Plus Ultra* race, say, with the giant pod of Telephone.

All these should be blue or green Marrows and bear their pods in pairs. At the time the Committee viewed the trial Peas Culverwell's Autumn Giant was not ready, but it was the largest pod on the ground. In conclusion, all Pea-raisers are reminded that at Chiswick they can depend on a fair trial being made under Mr. Barron's capable management.—G. B.

AUSTRALIAN BIG TREES.—The Minneapolis *Lumberman* has an article on the gigantic trees of Australia, of which the following is an extract:—"The trackless forests in the west of Tasmania contain huge timber, and bushmen report that they have met with specimens of Eucalyptus measuring 200 feet from the ground to the first branch, and fully 350 feet in all. Until 1873 there was standing on the eastern slope of Mount Wellington, within four miles of Hobart Town, a Eucalyptus measured at 86 feet in girth and more than 300 feet in height, and its ruined bole still forms a grim chamber in which many a merry party have enjoyed a picnic. The famous tree of the Huon forest measures 70 feet in girth 6 feet from the ground, and is stated to be 240 feet high, but in the deep gorges of this grand forest the

writer has seen higher trees than this, though not of quite equal circumference. But Victoria now claims the glory of holding the biggest of all the living 'big trees' in the world, so far as height is concerned. In the Dandenong district at Fernshaw has recently been discovered a specimen of Eucalyptus amygdalina, or Almond-leaf Gum, which has been accurately measured as reaching the enormous height of 380 feet before throwing out a single branch, and 430 feet to the top, and having a girth of 60 feet at some distance above the ground. Some idea of what a height of 430 feet represents may be gained from the fact that this Gum Tree, if growing by the side of the Houses of Parliament at Westminster, would overtop the clock tower by exactly 100 feet."

SPIRÆA JAPONICA.

THERE are few plants better known, and none more useful, than this; but lately I have been thinking that many might have it much longer in bloom than is generally the case with very little extra labour and much advantage. With us the first flowers were cut last December, and the last at the end of June. During those seven months we had spikes more or less weekly. The plants which flowered first and on to the month of April were forced in pots. Then those in cool frames flowered, and were followed by some on south borders, and the last were a number of plants growing at the base of a north wall. Here they are never exposed to the sun, but they always grow and flower freely, and we have frequently cut flowers from them as late as the present time. The roots for forcing first are grown fully exposed to the sun, and are consequently matured early, and from Christmas onward are easily brought into flower. Later on they may be brought forward more easily, and others later still bloom naturally; but it is the plants near the north wall which keep up the supply so long, and it is to this plan of growing a few plants particular attention is called. For all kinds of winter floral decoration the flowers of this Spiræa are highly esteemed, but the spikes are never out of season, and are quite as much valued in July as January.—J. MUIR.

CHERRY HOUSES.

PERHAPS there is no hardy fruit crop grown in gardens that causes so much disappointment as Cherries, on account of the great difficulty that is experienced in protecting the fruit from birds. When trees are grown by the acre, as in Kent, there is sufficient both for birds and cultivators, but it is very different where only a few trees are grown. It is not too much to say that the supply of Cherries is not only insufficient in the majority of gardens, but the period during which fruit might be had is much too limited. It is somewhat surprising that the affluent should remain satisfied with this state of things, especially since a remedy can be so inexpensively provided. This consists in providing houses and growing trees in pots. The most economical and satisfactory example of growing Cherries in pots under glass that has come under my notice is in Messrs. Rivers' nurseries at Sawbridge-worth. The Cherry house is a simple span-roofed structure, inexpensively constructed, and not heated. The sides are formed of rough boards secured to stout posts that have been affixed at intervals along both sides of the structure, but the sides are not boarded up to the glass, as a space of about 18 inches above the boards is simply covered with fine-meshed wire netting. There may possibly be a lid in addition which may be opened or closed as needed, but from the interior of the house only the netting was visible. The roof is a fixture, and if there is any provision for ventilation there it will simply be at each end just over the ridge board.

The sides of the house do not exceed 5 feet in height, nor the height to the ridge in the centre 8 feet. The path runs under this ridge with borders about 4 feet wide on each side; on these four rows of trees are arranged, and they bear prodigious crops of splendid fruit. In glazing the roofs of his houses Mr. Rivers uses no top putty, which is considered worse than useless, but the glass is well bedded in putty, and made secure by two sprigs or brads driven into the sashbars near the bottom of each square, the laps keeping the top of the squares safe. The cost of such a house is trifling, while the fruit that is produced in it is of undoubted value.

From this plain yet essentially useful structure Cherries of the finest size and quality are gathered during a period of five months. So heavily do the trees in pots bear that the fruit can be gathered by handfuls, and a dish filled in two minutes. The fruit of some of the varieties hangs, like Grapes, for weeks after it is ripe, and develops a richness that is not attainable in the open air. Sound firm soil and attention in watering, with cleanliness, are the essentials for success in growing Cherries in pots, and just in proportion as these are provided so will the reward

be. In the north and cold districts generally it would be doubtless advisable to provide the means for affording a little artificial heat if it were needed; but it would be wise to use it cautiously, for there is danger of amateurs playing with fire when they have the opportunity of doing so, and it is not beyond the bounds of possibility that there may be gardeners addicted to the same practice. There is, however, no fire in connection with the Cherry house at Sawbridgeworth, but always ripe fruit in season—June to October, both months inclusive.

A few varieties of Cherries for affording a supply of fine fruit of the first quality over the longest period are the following:—Bigarreau Jabouley, the earliest of all, light red, a free bearer, and of superior quality. Early Rivers—this forms a fine succession; it is a splendid Cherry with large black fruit, juicy and rich. Governor Wood, an American Cherry, very productive, and of excellent quality; colour light red. Late Black Bigarreau, a variety of well-proved excellence. Monstreucuse de Mezel, the largest of all the Bigarreus, fleshy and rich; the two latest sorts

being Emperor Francis and Guigne de Winehal. Three or four good trees of each of the above, well grown and managed, will give an abundant and lengthy supply of this popular fruit.

IMPATIENS SULTANI.

AMONGST recently introduced flowering plants this *Impatiens* appears to be not only one of the most distinct, but also likely to be one of the most useful for stoves or similar warm structures. It is easily grown, is of surprisingly free habit, flowering continuously for several months, and the bright rosy-coloured blooms are so plentifully produced that a few specimens have a most showy appearance amongst foliage plants. It has been tried in cooler temperatures, and even out of doors in a sheltered position; but though it grows and continues healthy under such conditions, it does not flower so satisfactorily, and consequently is not so attractive as in a warm house. One great advantage it possesses is, that after flowering the plant can be cut back moderately and



Fig. 16.—IMPATIENS SULTANI.

fresh growth started, which will quickly refurnish the plant and produce flowers abundantly, thus yielding prolonged attractions.

Some particulars respecting the origin of this *Impatiens* were recently published in these pages, and may be advantageously repeated now. "Its appearance at Kew was due to a mere accident, and shows how many valuable plants may be lost by the want of a little thoughtful care. A case of plants had been received there from Zanzibar, and a portion of the soil in this was turned out under a stage in one of the propagating pits, where it was undisturbed for some time, when amongst the weeds, which generally appear plentifully in a short time, was noticed this *Impatiens*. It was carefully potted and grown, and when it flowered its full beauty was revealed. It was at first believed to be either *Impatiens Walleriana* or a near ally of that species, but Sir Joseph Hooker has now determined it to be an undescribed form, and has named it in honour of the Sultan of Zanzibar. It is of very compact bushy habit, with narrow, ovate, slightly tapering leaves, the flowers being about 1 or 1½ inch in diameter, and very bright rosy scarlet in colour, a peculiarly distinct but most effective hue. They are produced singly in the axils of the leaves, especially towards the summit of the stems, but so freely that a well-grown specimen appears to be quite a ball of flowers."

As regards the cultural requirements of the plant there is little to be said. Ordinary rich light loamy compost suits it well, with abundance of water during growth and occasional supplies of liquid manure. At present no plants have been raised from seeds, as these do not appear to ripen, but propagation can be readily effected by means of cuttings inserted in sandy soil in bottom heat, almost any portion of the growths striking readily. The Kew authorities have now distributed several plants to metropolitan nurserymen, so that a stock will soon be obtained. A botanical certificate was awarded to this plant by the Scientific Committee of the Royal Horticultural Society on the 11th inst.

NATIONAL ROSE SHOW AT DARLINGTON.

JULY 19TH.

DARLINGTON was *en fête* on Wednesday, thousands of visitors arriving by train from the surrounding district to witness the great Rose Show. The weather was most favourable—a warm genial sunshine with a gentle breeze prevailing all day. The Show was held in Southend Park, kindly granted for the occasion by the Misses Pease. The Park is easy of access and beautifully wooded. It is the first time the National Rose Show has been held so far north. This has

been mainly through the exertions of Mr. Whitwell, Barton Hall, along with a few influential gentlemen in Darlington to assist him. All may congratulate themselves on the result of their labours, and the success achieved may be attributed considerably to the influence of the promoters and the central position Darlington commands. We hope this may induce the inhabitants of the town to hold an exhibition yearly, as horticulture is well represented in the neighbourhood. Referring to the Exhibition, it was considered by gentlemen well fitted to form an opinion that it is the best that has been held this year, the only one approaching it being that held at Kensington on the 4th inst.

Nurserymen's Classes.—In Division A, for forty-eight Roses, single trusses, there were seven entries. The first forty-eight were far in advance of the others in size of flower, colour, and form, these being from Mr. B. R. Cant, Colechester, who had fine examples of Duke of Edinburgh, very large and rich in colour, nearly 6 inches in diameter; Marie Baumann, Elie Morel, Madame Charles Wood, Alfred Colomb, Madame Hippolyte Jamain, Etienne Levet, Triomphe de Lorraine, Madame Gabriel Luizet, Countess of Rosebery, A. K. Williams, Comtesse de Paris, and Mrs. Harry Turner. Messrs. Paul & Son, Old Nurseries, Cheshunt, were second with some fine blooms of Marie Baumann, Pride of Waltham, Madame Victor Verdier, Reynolds Hole, Exposition de Brie, La Duchesse de Morny, Duchess of Bedford, and Comtesse de Choiseul. The Cranston Nursery and Seed Company, Hereford, were third, their best flowers being Constantin Tretia-koff, A. K. Williams, Perle des Jardins, Countess of Rosebery, Pride of Waltham, Hippolyte Jamain, and Madame Hippolyte Jamain.

In the class for twenty-four flowers, three trusses, there were also seven competitors. Mr. George Prince, Oxford, Messrs. Cant and Cranston were the respective winners. The first stand contained good flowers of Baronne de Rothschild, La Duchesse de Morny, Annie Wood, La France, Duc de Rohan, Souvenir de Madame Pernet, Alfred Colomb, Duc de Rohan, Madame Marie Verdier, very fine; Mdle. Marie Finger, Louis Van Houtte. The second lot contained Duke of Edinburgh, La France, Madame Eugénie Verdier, Madame Marie Finger, Countess of Rosebery, Dupuy Jamain, Horace Vernet, and Fisher Holmes.

In Division B, for thirty-six single trusses, Messrs. Davison & Co., Hereford, won chief honours with fine blooms of La France, Victor Verdier, Eugène Verdier, Mons. Etienne Levet, Mons. E. Y. Teas, Duchesse de Vallombrosa, Duke of Connaught, Belle Lyonnaise, Ferdinand de Lesseps, Mons. Noman, Mrs. Laxton, Senateur Vaisse, Madame Charles Wood, and Mdle. Thérèse Levet. Mr. John House, Eastgate Nursery, Peterborough, was second; Mr. Thomas Horseman, Ilkley, third; and Mr. Frettingham, Beeston Nurseries, Nottingham, was awarded an extra prize in this class. For eighteen Roses, three trusses each, Messrs. Davison & Co., Hereford, were first, followed by Messrs. Frettingham and Harkness. The former had good blooms of Baronne de Rothschild, Marie Baumann, Alfred Colomb, Horace Vernet, La France, Peach Blossom, Louis Van Houtte, Ferdinand de Lesseps, Marquise de Castellane, and Mons. E. Y. Teas.

For twelve Teas or Noisettes, distinct, Mr. B. R. Cant and Mr. Prince were placed equal first. Mr. Cant had good blooms of Souvenir d'Elise, splendid; Gloire de Dijon, Madam Brown, President, Marie Van Houtte, Niphotos, and Anna Ollivier. Mr. Prince had Catherine Mermet, Comtesse de Nadaillac, Souvenir d'un Ami, Rubens, Anna Ollivier, and Souvenir d'Elise, all good. No second prize was awarded, Messrs. Paul & Son being third. A plant of the new Noisette Rose William Allen Richardson was shown by Mr. John House, Peterborough. It is of an orange-yellow shaded saffron tint, and attracted much attention from the northern Rose-growers.

Amateurs' Classes.—In Division C Messrs. Whitwell and Burrell carried off the principal prizes. Both have been already very successful this year at all the leading exhibitions which have been held. For thirty-six single trusses Mr. E. R. Whitwell was deservedly first. He had large fresh blooms of La France, John Stuart Mill, Marie Rady, Alfred Colomb, Duc de Rohan, Dr. Andry, Marie Finger, Camille de Rohan, Mons. E. Y. Teas, Bouquet d'Or, Prince Arthur, Marie Baumann, and Général Jacqueminot. Mr. Thomas Hall, Chester, and Mr. G. Hawtrey, Slough, Bucks, took the second and third prizes, both stands being much inferior to the first collection. For eighteen single trusses Mr. Whitwell also secured the first award, followed by Mr. Grant, Ledbury, the first-named showing excellent flowers in this class.

In Division D Mr. Burrell of Heighington, near Darlington, was first for twenty-four single trusses, showing very fine flowers of John Stuart Mill, François Michelon, Emilie Hausburg, Marie Baumann, very fine; Exposition de Brie, Madame Hippolyte Jamain, A. K. Williams, and Marie Rady. No second prize was awarded. For eighteen single trusses Mr. Burrell was also first with very good flowers. In Division E Mr. Cuthbert Laws, Ponteland, took first honours for twelve single trusses; and for six Mr. Mawley, Addiscombe, Croydon was first. In the extra class for nine Teas or Noisettes Mr. Edward Mawley was first. His best blooms were Anna Ollivier, Marie Van Houtte, Comtesse de Nadaillac, Mons. Furtado, Innocente Pirola, Madame Bravy, Souvenir d'un Ami. Mr. Thomas Hall was second. For twelve trusses of any kind Hybrid Perpetual (dark) Messrs. Paul & Son were first with fine large flowers, even and well coloured, of the charming Rose A. K. Williams, which were deservedly admired. Mr. Prince was second with Alfred Colomb, which were also superb in size. For twelve trusses Hybrid Perpetual (light)

Mr. B. R. Cant was first with Duchesse de Morny; Messrs. Cranston and Co. second with Capitaine Christy.

The marquee was decorated with plants for the occasion, which were kindly lent by Mr. J. Pease, Mr. A. Pease, M.P., Mr. H. J. Fry, M.P., Mr. J. Hodgkin, the Misses Pease, and Mr. E. B. Spence, nurseryman, Darlington. Mr. E. R. Whitwell; the local Secretaries—Messrs. Gibson and Byers—with Mr. Burrell, Alderman Shaw, Mr. George Page, Mr. Bousfield, and other gentlemen who rendered their assistance, are to be congratulated on the result of their labours. The Rev. H. Honeywood Dombain and Mr. Edward Mawley, the Hon. Secretaries of the National Rose Show, were also present, and rendered efficient service.

SNOWDROP CULTIVATION.

THE majority of readers are without doubt thoroughly conversant with the cultivation of this early-flowering bulb for decorative purposes in gardens; but many are not acquainted with its cultivation previous to passing into the hands of the trade. The object of these notes is to clear away, if possible, the vague notions now entertained by many that the bulbs ready for sale towards the end of August are of continental origin. I do not intend to assert that none are imported, but the majority are cultivated in this country, and are larger and better than any I have seen imported. I learn that the culture of these bulbs for sale is profitable, although the prices given to the grower per thousand appear small. In these days of depression the growth of Snowdrops might be extended with much advantage and profit, as thousands of these roots do not occupy much land. In fact, many are annually produced from land planted with standard fruit trees and hush fruit. All are not grown in such positions, for they do not develop quite so fast or make such fine bulbs as when more liberal cultivation is given them in an open space; but vast quantities are grown, and I am familiar with an orchard where thousands of roots have been grown and sold annually for the last twenty years or more. Perhaps my first occupation in gardening was to clean, lift, and select the saleable bulbs during my schoolboy days, and I have periodically visited the neighbourhood in which they are largely grown ever since.

Lifting is done during the month of July. The bulbs are sorted, the largest being selected for sale, and the others retained for planting again. When grown in the open an early or second early crop of vegetables is taken from the ground. After the bulbs are sorted at the first opportunity the ground is dug and manured, unless that operation has been well performed for the preceding crop. Manure is not really essential, as Snowdrops will grow almost anywhere, but where great success is anticipated manure is given, as they grow stronger, and in the end the bulbs are larger and more numerous. The small bulbs are not out of the ground long, but are planted at the first opportunity in rows 6 inches apart and about 1 inch between the bulbs as the digging of the ground proceeds. Others dig the ground first, and then draw out small drills, in which the bulbs are planted. Some plant closer than the distance I have given between the rows, but they cause more labour in keeping them clean when planted too thickly. All that is necessary for two years after planting is running the hoe amongst them occasionally to destroy the weeds; at the end of two years they are again lifted and sorted as before. Those who grow large quantities generally have two lots, so that they have bulbs for sale every year. The ground upon which they have been growing if out in an open space can be utilised for spring Cabbages, autumn-sown Onions, or any such crop that is serviceable to the grower. It will be at once seen that their cultivation for sale is simple, and quite as easy as growing them in our gardens for flowering during the spring.

Perhaps in no county are so many Snowdrops grown for sale as in Lincolnshire, and especially in that flat stretch of country known as the fens. The locality in which they are most largely grown is not so liable to be flooded as some other parts, but hundreds of thousands are grown within from one to four miles of land that was entirely under water two seasons ago and the Potatoes never dug. In this locality there certainly is a risk, as with all other crops, and in very wet seasons the bulbs are liable to decay. This happens occasionally, but not generally, and, on the whole, they are more certain than many crops. The ground generally is fertile if it could be drained, and will produce in good seasons as fine agricultural crops as any land in the country. When Snowdrops can be grown to be profitable in what would appear an uncertain locality, what might be expected in many other more favourable parts? There appears no difficulty in disposing of the bulbs, as the trade travellers visit the locality annually and buy up all they can obtain. It must be understood that many of the former grow them largely in spare corners of their little gardens and in positions where many other plants would not succeed. One cottager a short time ago remarked to

me "that lot grows where nothing else would grow, and the labour I consider nothing, and you see they pay the rent." Although the Snowdrop flourishes so well they do not cultivate the Crocus—at least very few—and the reason, I am told, is that the ground is too wet.

Those who only grow the Snowdrop on a limited scale for sale at present would do well to replant their whole stock for a few seasons instead of disposing of them. The demand for early flowers appears more general than ever, and I am of opinion that it will continue for some time to come, and this early-flowering bulb will be in greater request for planting in woods and other suitable positions in the future than it has been in the past.—W. BARDNEY.

A FINE CROP OF POTATOES.

SOME Myatt's Kidney Potatoes we lifted to-day were so fine, considering the conditions under which they were grown, that I was induced to ascertain the amount of crop and its present value per acre. I now send you the results arrived at. I may premise that we lifted a larger crop from a south border a fortnight ago, but these were grown under more favourable conditions. I am now sorry I did not make any note of the weight of that crop. Those now in question were grown on a border occupied permanently with large Apple trees, and between two main quarters in the vegetable ground. Turnips and such catch crops commonly occupied the ground, and it was kept in rather poor condition for vegetables; indeed it is several years since any manure was allowed it. Having more "sets" of Myatt's Kidney than were required I had them planted on this border, which had been dug in the early part of the preceding winter. The rows were 2 feet apart, and the "sets" 1 foot asunder, so that to the acre there would be 21,780 sets. Every set was furnished when planted with one strong bud half an inch in length. In planting, a line 4 inches deep was formed with a spade, the ground being pointed merely between the rows, and the succeeding row prepared for in the same manner as the first. Planting was performed in the end of March. A dressing at the rate of 6½ cwt. to an acre of chemical manure was applied along each drill before the sets were placed in, and, with the exception of having been once hoed, nothing has been done to them.

In stating the weight of the crop a gallon hamper was filled with the best Potatoes, commencing at one end of the row; then the seconds were gathered from the same space, and lastly the small unsaleable tubers. The number of best tubers to the gallon was eighty; these weighed 24 lbs., an average of 4¾ ozs. each. There were forty-one seconds, weighing 5¼ lbs., or 2 ozs. each; and nineteen small, slightly over 1 lb. The length of the row from which these were lifted when measured was exactly 18 feet, which gives a weight per acre of nearly 13 tons for the best, and of the seconds 2 tons 17 cwt. Rather more than three farthings per lb. in quantity is received for the best Potatoes on the ground, while the seconds sell at exactly a halfpenny per lb. Taking the price for the best at three farthings per lb. the return per acre would amount to £91 5s., while the seconds would be £13 5s. 6d., or a total of £104 10s. 6d. The earlier crop referred to was a larger crop than this, and from 50 to 100 per cent. more was received per gallon, but I hardly expect to find the crop in the main quarters any better, if so good, as this one when I test the weight and amount. The interesting point to me regarding these Potatoes is the fact that I have always distributed manures broadcast over the entire surface of ground, but in this case the manure was sown along the drills only. The manure used was composed of superphosphate from minerals, chloride of potash, and sulphate of ammonia, in the proportions of the first as sixteen, the second as twelve, and the third as nine. 1 lb. of this manure in a finely pulverised condition was put on 10 yards' run of the row.—B.

LUTON HORTICULTURAL SHOW.

JULY 19TH.

WHEN the Bedfordshire Agricultural Society visits the straw plait capital, which is about once in four years, the sister crafts, Agriculture and Horticulture, shake hands, and a good joint show is usually the result. The county town, Bedford, having been for some years quite disfranchised as regards horticultural exhibitions. The Show at Luton on Wednesday last was held in a ground adjoining and communicating with the County Agricultural Exhibition, and was contained in two large tents, but the canvas accommodation was much too limited, and dangerously so for the numerous fine plants which the liberal schedule brought together.

In the open class for twelve stove and greenhouse plants in or out of flower, no less than seven collections were staged. In this class Mr. Tudgey, gardener to J. F. G. Williams, Esq., Henwick Grange, Worcester, was awarded the first prize, his plants being all in flower,

Anthurium Schertzerianum having nearly seventy spathes of a rich colour; Dipladenia amabilis, Clerodendron Balfourianum, Allamanda Hendersoni, being also grand specimens. Mr. James Cypher, Cheltenham, was second with very fine plants, but all in flower. The best were of *Cycas revoluta*, Allamanda Hendersoni, Ixora Fraseri, and Erica Parmentieri. Mr. W. Parker, Rugby, was third, having Bougainvillea glabra very fine, Erica Parmentieri 4 feet in diameter and in full flower, and Kentia Fosteriana, a noble specimen. The fourth prize went to Mr. J. Freeman, gardener to W. B. Greenfield, Esq., Beechwood Park, Dunstable, for a very healthy collection of smaller plants. Mr. C. Butters, gardener to Mrs. Gerald Leigh, Luton Hoo, also staged some fine specimens, but mostly foliage plants. Good plants were also shown in the open class for six, as well as in the local class. Ferns were not correspondingly good, but Cibotium Schiedei and Davallia Mooreana were elegant examples.

In the open class for forty-eight Roses, single trusses, the only class in which Roses were efficiently represented, Mr. B. R. Cant of Colchester was first with fine blooms, his best being Hippolyte Jamain, Marie Finger, Countess of Rosebery, good; Duke of Edinburgh, Duchesse de Morny, Madame Nachury, Marie Baumann, A. K. Williams, Comtesse de Paris, Annie Wood, Prince Arthur, Penelope Mayo, Horace Vernet, Etienne Levet, Mons. E. Y. Teas, and Princess Beatrice. Mr. W. Rumsey of Waltham Cross was second, having fine flowers of J. S. Mill, Mdle. S. Fropot, a good cool season Rose; Mrs. Laxton, Star of Waltham, Duke of Edinburgh, Paul Jamain, Madame Chas. Wood, Marquise de Castellane, and Mdle. Camille in his stand. Messrs. G. Paul & Son, Cheshunt, who were also showing on the same day at the National Rose Society's Show at Darlington, were placed third; Madame Perreire, a promising Rose, in the way of Marie Verdier, but of greater substance; A. K. Williams, Chas. Lefebvre, A. Colomb, Comte de Raimbaud, Duke of Teck, Harrison Weir, and White Baronne being noticeable flowers. Several amateurs also entered the lists in this class, and the Rev. W. H. Jackson of Stagsden Vicarage, Bedford, with a few more blooms, equal to his best, would have been no despicable antagonist for a Colchester champion, his A. K. Williams, Chas. Lefebvre, Thos. Mills, and Emilie Hausburg (rarely better than from Stagsden) were all fine blooms.

Fruit was not largely shown, but a good collection of eight kinds for the first prize in the open class came from Mr. Freeman, who had richly coloured and finished Black Hamburg and Golden Champion Grapes, Royal Ascot Melon, Violette Hâtive Peaches, Pine Apple Nectarines, White Ischia Figs, Bigarreau Cherries, and Czar Plums. Mr. C. Pollard, gardener to J. B. Maple, Esq., Childwick Bury, Harpenden, took first for black Grapes with highly coloured Hamburgs, and Mr. Butters was first for white Grapes with good samples of Buckland Sweetwater. Fine Downton Nectarines came from Mr. Underwood, gardener to C. R. Fenwick, Esq., Harpenden, deservedly secured the first in this class. A good early red Gooseberry of the Champagne type, and above the ordinary size in earlies, called Glory of Oldport, was shown.

Vegetables were not so good as those usually shown in the northern side of the county, the chalky soil of the Luton district not favouring their development in exhibition form; and the best collection of twelve varieties came from Mr. G. Vines, gardener to H. Thornton, Esq., Kempston Grange, Bedford, whose large red Tomatoes, Telegraph Peas, and Pride of America Potatoes well indicated his skill as a successful cultivator of vegetables.

Dinner-table decorations were not remarkable, but the table of Mrs. Higgins of Upper George Street, Luton, who was awarded the second prize, was evidently more to the popular taste than that which was placed first. A combination of white Water Lilies and other white flowers interspersed with Adiantums and Grapes, and based with leaves of the Purple Beech, produced a pretty and not inelegant effect. Miss M. A. Gardner, Luton, was awarded first for a commendable table, but of less pretentious appearance. Wild flowers formed a good feature of the Show, and Mr. J. Saunders of Luton showed a collection of two hundred specimens, 160 illustrative of the flora of South Bedfordshire and forty from the New Forest. The special point in this collection was the classification of the specimens. Each species was separately placed in a small vase, and to it was affixed a white card, on which were legibly written the number in H. C. Watson's London Catalogue, seventh edition, also the natural order, genus, and species, the nomenclature being that of Hooker's "Student's Flora." To the divisions conspicuous labels were placed, on which in larger characters the names Thalamifloræ, &c., were written. Commencing with the Ranunculaceæ, the whole of the two hundred species were arranged in their scientific succession, the lowest natural order being the Gramineæ, as the exhibit was limited to the Phanogams. Under these circumstances the affinities of the various groups could be traced, and the whole served as an illustration of the principles on which British classification is based. The New Forest specimens included some of our rarest British species, as, for examples, *Spiranthes æstivalis*, from the locality given in the guide books as near the old Lyndhurst gate; *Gladiolus illyricus*, *Cicendia filiformis*, *Radiola millegrana*, *Pinguicula lusitanica*, *Utricularia minor*; the three *Droseras*—*rotundifolia*, *intermedia*, *anglica*; and *Carex pulicaria*. The general effect was improved by the specimens being placed in dark glass vases, which were stood on white paper.

ECHIU RUBRUM.—This is a pretty hardy plant well worth notice. The flowers have hairy calyces; the corolla is about an inch long,

more open and deeper cleft than *E. albicans*, deep red at first, changing to purplish crimson, presenting a very attractive appearance, and lasting a long time in beauty—June to September—and last year it ripened seeds freely, especially those flowers which expanded first. I notice different authorities quote this as a biennial, but my experience is to the contrary, as after flowering the plant was more vigorous, forming fresh tufts of foliage, and showed no signs of decay, and it passed the severe winter of 1880-81 without any protection. I received seed from Dr. Regel of Petersburg, from which the plants were raised in a cold frame treated as ordinary hardy-plant seeds generally are, and this appears to be the only method of securing stock of it. It requires a well-drained position with a good depth of soil, the rockery being the proper home for it, and the effect it gives is very striking and novel.—T. R.

DOUBLE-FLOWERED DELPHINIUMS.

THE Delphinium has maintained its position in our gardens after being cultivated for a very long period as a perfectly-hardy plant, especially *D. formosum* and its varieties and congeners. Later on there have been introduced several other species, very variable, from the tall deep blue-flowered kinds, which, however, are not so showy, nevertheless they are equally desirable in our gardens, such as the scarlet *D. cardinale*, which is a strange divergence in coloration from those we have been accustomed to see, and *D. nudicaule* of the same colour, but not such a good plant. It would be grand if we could get scarlet-flowered varieties with the robust and hardy characteristics of the *D. formosum* series. At present we see no chance of expecting such, therefore so far we must remain content with our sturdy blue-flowered kinds, which, however, very materially vary in point of colour. There are not wanting indications in many of the varieties of a disposition to break out into crimson.

The double-flowered varieties of Delphiniums are especially worthy the attention of floriculturists, however humble their pretensions; these should be well cultivated. It is insufficient to give them such illiberal treatment as is frequently afforded the single varieties. A good rich soil is necessary—not very stiff, for as a rule they prefer a free soil. Deep digging is essential. In planting these and double Pyrethrums I have the ground thoroughly dug two spits deep—i.e., when cultivating them in beds, and a liberal supply of manure is well worked in the soil, and the plants are arranged about 3 feet apart each way; or for the first year they may be planted 18 inches apart, and when necessary every alternate plant can be removed to make room for the proper development of the rest. Before the stems are very high it is advisable to stake them, as strong winds are apt to break them down, for the heads of bloom are very heavy. They may be increased soon after flowering by dividing the roots, which usually bud out freely at the crown of the rootstock at that time. The stools should be raised and carefully cut, leaving each division with as good a supply of roots as possible; or they may be split up in the same way in early spring, transplanting the newly made plants as speedily as possible after the operation, well pressing the soil about them. If the roots are split up into very small portions they should be placed into 60 or 48-sized pots, and be transferred to a cold frame until root-action is resumed, and thus re-establish them, when they may without fear of loss be planted out again in beds or borders. With border cultivation there is not the convenience for deep digging as in the case of a bed, as many other plants might be unfairly disturbed; but at the same time the soil where the plant is to be placed can be deeply broken up and well enriched with manure, and if a little trouble is incurred it is more than likely a good reward will be obtained. Double and semi-double-flowered varieties may also be raised from seed, as that is the means by which all the beautiful kinds at present known to us have been obtained. It is advisable, where good double forms exist, to keep them well separated from the other varieties if the seed is required true; and although it is probable that only semi-double flowers may be obtained from the seedlings, yet they may be novel, or at least well worth growing, as they are frequently very showy, producing large and variously coloured flowers. Seed may be sown in the open border after it is ripe, where it speedily germinates, and the young plants may in due course be transplanted where they will bloom the ensuing season. Or it may be raised in pans in a cold frame, the seedlings being pricked out when large enough.

To those unacquainted with these flowers the following selection of varieties may be serviceable. I have grown besides them many others perhaps equally desirable; in fact there are a very great number of first-class kinds, and that number is constantly increasing, and, speaking generally, they are all good. *Amedée Hans*, 2½ feet high; spike very full, with large flowers bright sky blue with white centres. *Barlowi*, a very old semi-double kind, little

more than 2 feet high, with flowers of a deep blue colour shaded with bronzy red. *Barlowi perfectum* is an improved form of the last, with dense spikes of rich indigo blue flowers shaded with crimson; a very effective and dwarf kind, not more than 2 feet high, but one mass of bloom. *Caire Courant*, 4 feet; flowers very large and double in dense spikes, bright sky blue throughout; very free and fine. *Grandiflorum plenum* is a scarce plant, 2 feet high, with immense branching spikes of large double flowers, dark shining blue shaded with bronzy red; a most distinct and conspicuous variety, and when once established it is a most magnificent plant. *Exquisite*, 4 feet; flowers semi-double, in great spikes of a rich cobalt blue suffused with rosy lilac; very large and showy. *Globe*, 2 feet; a very effective kind, with dense spikes of very double flowers of a rich lavender tint, with paler centres. *Hermann Stenger*, a favourite, 4 feet, with very long branching spikes of large very double flowers; outer petals bright purplish blue, centre ones rosy purple; a most showy variety and very free. *Eugène Verdier*, 3 to 4 feet, with dense spikes of very double flowers like a *Ranunculus*; outer petals violet blue, inner ones blue, with white star-like centres; a most distinct and novel form. *Keteleeri*, 3 feet, with dense spikes, freely branched, of flowers of a rich lavender blue tint with white centres; a much-esteemed and free-growing variety. *M. Le Bihan*, 3 to 4 feet, with a large central spike half as long as the whole stem, densely set with large semi-double flowers; outer petals bright glistening blue, inner ones rosy purple; most conspicuous. *Pompon Briliant*, 2 feet, very robust, with long spikes densely packed with large very double flowers, rich violet-blue outside, with the centres reddish-purple. *Ranunculiflorum*, 3 to 4 feet; spikes very freely branching, and crowded with double rosette-like flowers, with the outer petals rosy-purple edged with light blue, and the inner ones paler in colour; very effective. *Star*, 3 feet, with long pyramidal spikes of full double flowers, pale azure blue, with white star-like centres; a most persistent bloomer. *Triomphe de Poissy*, 3 feet, with medium-sized flowers on very full spikes, semi-double, shining sky blue, tinted with pink; very free. *Robert Parker*, 3 to 4 feet, with dense spikes of large very full flowers of a clear violet blue colour; a most distinct variety. *Victor Lemoine*, 3 to 4 feet; spikes very large, filled with large perfectly shaped flowers, very double, clear sky-blue outside, with white centres.—N.

LATE VEGETABLE CROPS.

THE present is a good time to see to these. Many varieties of vegetables may be sown now to give supplies in late autumn and throughout the winter. At these seasons abundance of good vegetables are just as much valued as any during the early part of the season, and it should be remembered that variety is very desirable in most cases, and as this is more difficult to secure in winter than summer timely provision should be made for it.

Colerworts.—Seed of these which come in throughout the winter in a form resembling young Cabbage may yet be sown, and the seedlings planted out when large enough in rich ground. They do not grow very large, and may stand 18 inches apart each way.

Winter Spinach.—This comes best from the prickly variety, and should be sown now and again in another month. Nothing is more useful in the kitchen in winter than this, and a good supply of it will compensate for many deficiencies. Those who think it is a worthless vegetable to grow and valueless at the table are mistaken. If it is not grown so extensively as it should be it must be because its merits are not known. South borders and open sunny quarters are good positions for present and subsequent sowings. The drills for the seed should be 18 inches apart and 2 inches deep. Soil from which Potatoes or any other crop has been recently taken will be found to suit Spinach. Moderately rich ground suits it well; when too rich it is liable to grow soft and not stand cold weather uninjured, and when too poor the leaves are not so succulent as they should be. A good breadth of it may be sown at once. When the plants are 2 or 3 inches high some should be drawn out, and this may be done again until the plants for the permanent crop are 8 or 10 inches apart. After this the leaves will expand freely, and they should be gathered before they become too old, only the centre ones being left to yield fresh supplies, which they will continue to do until very severe weather stops their progress. Autumn-sown Spinach plants do not generally flower until spring, and until then gathering may be done as sufficient growth is made.

Carrots.—Varieties of the Early Horn section, if sown on a south border now, will give some useful little roots late in autumn, and these are much valued. Large old Carrots are useful in many ways in winter, but they cannot take the place of small delicate young roots, and those may be secured by attending to these notes. In our district the spring-sown Carrots have been

much attacked by the grub. If this is the case in many parts winter Carrots may be scarce, but the deficiency may still be made good by sowing at present. The seed should be put in rows about 1 foot apart; sowing Carrot seed thickly at any time is not a good plan. In August and September they do not grow so fast as in May and June, but as soon as they become close together the smallest should be drawn out to give room to the best. At the first thinning few may be large enough for use, but when they are thinned a second time the roots may be turned to account.

Turnips.—Seed of these may be sown at the same time as the preceding. They should be sown in rows 18 inches apart; Chirk Castle is our favourite kind for present sowing. It is excellent in winter, being both most hardy and high-flavoured. Yellow Turnips are very hardy too, but they do not meet with the same favour as the white-fleshed kinds. Were it not for this yellow Turnips might be grown with profit, as they are not so likely to flower as the white. Their culture for winter is easy if the seed be sown now. They must be thinned out early, as crowding at first is against their free development. The more hardy they can be grown the better will they bear the severe weather. If sufficient seed is sown now fine useful roots may be had daily from October until April.

Late Kidney Beans are worth growing, as numerous dishes may be had from a small space, and when they can be sown in such a way that frames can be placed over them in autumn they will give a supply long after those in the open air are over. Osborns' Forcing is the best kind to sow now, to be treated in the manner we have indicated.

In many instances Globe Artichokes have now supplied all the heads formed this spring, and if left uncared for they may not produce more this season; but by giving them copious supplies of liquid manure now they will be induced to throw up many fresh stems and form heads so late as November. It is now too late to plant Brussels Sprouts to do any good this autumn, but Cauliflower, Broccoli, Savoy, and Celery may still be placed out. Salading may also be placed out in quantity, and the seed of winter Lettuce, Endive, and Radish should be sown. Most of the vegetables here mentioned have been noted in these pages before, but it is so important to have them sown at the right time that I have been induced to call attention to them now.—
A KITCHEN GARDENER.

LEEK ROSE SHOW.

I KNOW few lovers of the Rose who are more to be commended than those of Leek—not for the excellence of their culture so much as for the manner in which, under adverse circumstances, they maintain their exhibitions; for I have never been there yet that there has not been wet weather, if not on the day of the show, at any rate—what to a Rose-grower is nearly as bad—on the day before, and we all know how to small growers this is a great calamity. But they have one thing in their favour; they have one or two excellent growers of plants in their neighbourhood, and to Mr. E. Glover of Highfield they are much indebted for the liberal manner in which he supports the Show, and for the encouragement given by the exhibition of his beautiful and admirably grown plants, which are so well managed by his able gardener Mr. Roberts. I had the pleasure of being his guest, and had the opportunity of going through his garden, and it would be impossible to excel even at our metropolitan shows some of his stove and greenhouse plants, while fruit is grown in a thoroughly excellent manner. Sometimes we hear people say that they have left their best things at home, or they would have occupied a very different position; but I am bound to say this is true of Mr. Glover, for the simple reason that the door of the room where the Show took place was not large enough to admit them!

We know how much the growers for sale contribute to the beauty of a Rose show by their exhibits, but although liberal prizes were offered only one firm responded to the invitation. It may be that the National Rose Society's Show at Darlington taking place on the following day, or the exceeding awkwardness of the railway accommodation, may have been the reason. Only one stand, that of Messrs. Jas. Dickson & Sons of Chester, was exhibited. It was a good stand, containing the following varieties:—A. K. Williams, Marie Baumann, Elie Morel, Marie Rady, Baronne de Rothschild Exposition de Brie, Marquise de Castellane, Cheshunt Hybrid, Charles Darwin, Madame Ferdinand Jamain, Horace Vernet, Comtesse d'Oxford, Gabriel Tournier, John Hopper, Sir Garnet Wolseley, Comtesse de Serenye, Miss Hassard, Oxonian, a good bloom; Richard Laxton, Sultan of Zanzibar, Dr. Andry, François Michelon, Senateur Vaisse, Marie Verdier, Paul Neyron, a really good not over-large bloom; Souvenir de Victor Verdier, very good; Duke of Edinburgh, Etienne Levet, Captain Lemaire, very good; Beauty of Waltham, Pride of Waltham, Madame Victor Verdier, Madame Hunnebell, Pierre Notting, La France, Constantin Tretiakoff, very good; Princess Mary of Cambridge, Comtesse de Paris, Princess Beatrice, and John Stuart Mill. Mr. Eyre took the first prize amongst amateurs, and also the National Society's silver medal, while the bronze medal for

the best Rose in the Show was given to a fine bloom of Louis Van Houtte, an Alfred Colomb in another stand gaining another, as there was not half a point even between them. Mr. Eyre had good blooms of Louis Van Houtte, Marquise de Castellane, Marie Baumann, Madame Victor Verdier, Etienne Levet, Madame Gabriel Luizet, Princess Beatrice, Constantin Tretiakoff, which seems a favourite flower in the north; Duchesse de Vallombrosa. The other exhibits do not call for any particular remark. There is certainly still much room for improvement, and I hope the amateur growers of Leek will take a friendly word from one who wishes them well, that they would rise to the occasion and endeavour to raise the standard of their exhibits.

The stove and greenhouse plants of Mr. Glover and others made a fine show in the room, and contained good plants of Clerodendron Balfourianum, Cocos Weddelliana, Crotons, Vinca rosea and alba, Kalosantes, &c. Some fine Ferns were shown by Mr. Holden and Mr. Kemp, comprising Dicksonia antarctica, Adiantum farleyense, Davallia Mooreana, and other well-known varieties.

The Society has had many changes in its secretariat, which is always a disadvantage. Mr. A. Johnson, who is now fulfilling the duties of the office, is most thoroughly in earnest, and the arrangements of the Show were well carried out, and, strange to relate, everything was ready for the Judges at the appointed time—a most unusual circumstance. I hope that despite all adverse circumstances (it was a pouring wet day) the Society may continue and prosper. Difficulties have not deterred, nor do I think they will in the future.—
D., Deal.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday last (Jas. McIntosh, Esq., in the chair), the following candidates were elected Fellows:—viz., John H. Raffety, James Stearns, and W. Terriss.

— DR. C. STUART of Chirnside, N.B., sends us a spike of a FOXGLOVE with the following observations:—"When with the Scottish Alpine Botanical Club in Glen Lochsie, near the Spittal of Glenshee, two years ago, I cut a spike of a salmon-coloured sport from the centre of a plant of the common purple variety. I brought it to the south, put it in a bottle of water, and ripened several of the seed capsules. The plants from this seed were put out in the open border a year past in spring, and have only flowered during the last month. To prove that the colour was merely a sport several purple specimens have flowered from the same seed pod. I have, however, succeeded in perpetuating the variety, which is very distinct and handsome." The colour of the flowers is a peculiarly distinct rosy salmon tint, the inner portion of the corolla being dotted with rose.

— A VISITOR to Hampton Court observes that the flower and carpet beds will, weather proving favourable, shortly be in fine condition and worthy of inspection. In the carpet beds ECHEVERIA PEACOCKII is employed with great effect, and imparts a colour that is not found in any other plant. This is by far the most attractive of all the succulents for lines and panels, and it is likely to be increased as rapidly as possible by those who indulge in this style of garden decoration.

— IN the same grounds the HAMPTON COURT CRIMSON VERBENA arrests attention by its free growth, floriferous nature, fine trusses, and rich colour. Although the soil is light and dry this Verbena grows as freely as any other kind of plant in the garden, and reminds us of the gorgeous masses of Verbenas that were seen a quarter of a century ago. In general appearance the Hampton Court Crimson resembles that fine old bedding variety Crimson King, but is much larger and a better grower. This is a strong recommendation, but not too strong, as those will find who plant healthy and clean plants in ordinarily fertile soil. This variety is now in commerce, the stock having passed into the hands of Messrs. Cannell & Son of Swanley.

— IN one of the shrubby borders the most conspicuous object is *SPIRÆA LINDLEYANA*. There are several specimens from 6 to 8 feet high, which, with the large pinnate leaves and terminal plumes of white inflorescence have a remarkable effect. The specimens are not crowded by other shrubs, to which circumstance their present floriferousness is doubtless to be attributed.

— DURING the past week—namely, from the 18th to the 25th inst., Messrs. Cranston & Co. of Hereford have had an EXHIBITION OF ROSE BLOOMS in the Royal Botanic Society's Gardens, Regent's Park, which has attracted many visitors. About forty boxes were staged in the corridor, the majority containing thirty-six blooms each, and thus there were collectively over one thousand blooms, representing a large number of the best varieties in commerce. Fresh blooms were supplied every morning from the Hereford nurseries, and thus a fine display was maintained throughout the week. Such well-known and much-appreciated varieties as *Senateur Vaisse*, *A. K. Williams*, and *Alfred Colomb* were especially fine, the last-named being represented by particularly handsome blooms. *Duchesse de Morny*, *Charles Darwin*, *Lady Sheffield*, *Princess Beatrice*, *Mrs. Baker*, *Xavier Olibo*, *Comtesse d'Oxford*, and *Marquise de Castellane* were similarly good. But perhaps there was not a more attractive box in the whole Show than that filled with blooms of *Crimson Bedder*. These, though not large, were remarkable for their neatness of form and rich scarlet crimson hue, the half-opened buds being admirably suited for bouquets or button-holes. Some large trusses of buds and flowers well indicated the astonishing floriferousness of this useful variety.

— A CORRESPONDENT writes as follows:—"POISON BERRIES—*MEZEREON*.—A child in Maidstone has been seriously poisoned by eating the berries of *Daphne Mezereum*, possibly mistaking them for Red Currants. It may be as well to caution those who have these pretty spring-flowering shrubs in their gardens." The *Daphnes* are distinguished by possessing rather strongly marked acrid, caustic, or purgative qualities, which are especially developed in the fruits and bark. Some preparations have been used in medicine, but in large quantities they are injurious. *Daphne Mezereum*, *D. Gnidium*, *D. Cneorum*, *D. Laureola*, and several others possess similar properties.

— GARDENING APPOINTMENTS.—Mr. E. Butts, foreman at the Royal Gardens, Kew, has been appointed head gardener to Mrs. Tredwell, Leigham Court, Streatham; and Mr. John Woolford succeeds Mr. D. Greig as head gardener to the Right Hon. Earl of Bandon, Castle Bernard, Bandon, Cork, Ireland.

— OUR correspondent "SINGLE-HANDED" sends the following note relative to ROOTING STRAWBERRY RUNNERS:—"NORTHERN GARDENER," in noticing my method of securing early-rooted plants of Strawberries, says it is not suited for a very dry district. Now it is just such a district where it is superior if, as I recommended, the young runners are dibbled into frames kept close, shaded, and moist. If anyone with a spare frame will try that plan they will go on repeating it annually. During dry hot weather when no frames are to be had this plan might not be so successful, but even then much might be done by shading and watering."

— A SCOTTISH correspondent writes:—"Partly owing to the very mild winter and spring, partly to the 'growing' weather experienced during summer here 'in the north country,' a SECOND SPRING is being experienced, and bouquets may be had of *Roses* and other July flowers mingled with *Alpine Auriculas*, *Primroses*, and other *Primulas*. [Some people profess to be frightened at these things, but it is doubtful if any real harm can come to the plants thus growing again. The summer's rest which many things take is often forced on them by a heat and drought that

paralyses them into inactivity; but, as 'only the flying cloud changes and lightens—only the waving wing changes and brightens,' so only the growing plant spreads and gains strength for showing off its beauty in all its fulness. Instead, therefore, of moaning over untimely growth a rare opportunity should now be seized for dividing many such plants as we have named, for the warmth and moisture are just suited for making them strike root and become established."

— MR. C. V. RILEY, writing in "Nature," has the following respecting the UTILISATION OF ANTS IN HORTICULTURE:—"Dr. C. J. Macgowan has sent me from Han Chow, Province of Hainan, China, a little paper on the 'Utilisation of Ants as Insect-destroyers in China.' It seems that in many parts of the province of Canton the Orange trees are injured by certain worms, and to rid themselves from these pests the inhabitants import ants from the neighbouring hills. The hill-people throughout the summer and winter find the nests of two species of ants, red and yellow, suspended from the branches of various trees. The 'Orange ant-breeders' are provided with pig or goat bladders, baited inside with lard. The orifices of these they apply to the entrance of the bag-like nests, when the ants enter the bladders, and, as Dr. Macgowan expresses it, 'become a marketable commodity at the orangeries.' The trees are colonised by placing the ants on their upper branches and bamboo rods are stretched between the different trees, so as to give the ants easy access to the whole orchard. This remedy has been in constant use at least since 1640, and probably dates from a much earlier period. This is certainly a new way of utilising ants, which as a rule are deservedly considered a nuisance by the horticulturist. I should like to learn whether the facts communicated have before been known in Europe, and, if so, whether the species of ant has been determined."

— RELATIVE TO CARTER'S NEW FAIRY QUEEN VIRGINIAN STOCK a correspondent writes:—"This is an acquisition among early-flowering dwarf annuals, its compact growth and numerous richly coloured flowers completely putting the typical form of the old favourite in the shade. The flowers are variable, but the majority are rosy crimson, and large flowering masses are sparkling cushions of brightness, there being at the present time nothing prettier in my garden."

— A DAILY paper says:—"Not a few capitalists in the United States are investing large sums of money in what promises to be a very profitable and lasting industry—namely, the cultivation of ORANGES IN FLORIDA. It will scarcely have escaped the attention of any middle-aged man that we in England seem now-a-days to have Oranges nearly all the year round, whereas twenty or thirty years ago they had their season, like Gooseberries. The reason is that we are no longer dependant on Spain or a few tropical islands for our supply, but we receive Oranges from many parts of the world, and when one crop is exhausted another arrives. Not many years ago Oranges at a halfpenny each in the middle of July would have been deemed curiosities; but so much as a matter of course is their appearance now considered that it is doubtful whether even those who sell them can explain how the change has been brought about. The beginnings of several large fortunes have been made by speculators who have taken up land in Florida and planted it with Orange groves. Not many years ago that State was regarded as an unhealthy swamp; but as a proof of how little was known of the capabilities of the practically uninhabited parts of North America, Florida now produces fifty millions of Oranges per annum, and will yield a great many more millions when the estates now undergoing cultivation are brought into full bearing condition."

— IN the paper discussing the COMPARATIVE HARDINESS OF HARDWOODED PLANTS by Col. H. M. Drummond Hay, which

we recently noticed, occurs the following interesting passage on the variability of hardiness:—

"To show the uncertainty of plants; some which have been looked upon as hardy, in having previously passed through many a severe winter, yet succumb to the effects of some one in particular, where another species not usually considered so hardy survives, but ultimately itself falls a victim to some succeeding winter, both having been grown under precisely similar conditions. I may instance the Rosemary and Gum Cistus (*Cistus ladanum*). Every plant of the former—of which there were several, some of them old and long-established plants, one of them having stood with impunity the severe winter of 1860-61—was utterly destroyed in 1878-79, while the Gum Cistus was scarcely touched, but every plant was finally killed in 1880-81. This latter I very much attribute to the wet summer of 1880 and the snowstorm of March 1881, and I merely mention this to show, as I have before said, how much the hardihood or non-hardihood of plants in our climate depends on circumstances, and those mostly local, certainly not from the degree of latitude, as many plants which flourish in Devonshire and the southern counties of England may be found growing in Scotland and standing the winters without injury, while in intervening counties in England they perish. This is particularly to be noted on our west coast, where even such a plant as *Eucalyptus globulus* attains a considerable size, and where the *Fuchsia* as I have seen in the Island of Arran—which with us in the neighbourhood of Perth when grown in the open air and not on a wall, requires to be treated like an herbaceous plant, and cut down every season—grows as a tree, with stems as thick as a man's thigh, to all appearance at least fifty years old—thanks to the influence of the Gulf stream. Then, again, on our own east coast, and especially in the vicinity of the estuary of the Tay—at Dundee, Broughty Ferry, Newport, &c.—many plants will flourish and safely pass through our severest winters, which a few miles further inland will succumb. Thus, the *Laurustinus*, magnificent bushes of which I observed in fine health and vigour at Scotscraig towards the end of the winter of 1880-81, Admiral Maitland Dougal assures me have never suffered in the least; while at Seggieden, not more than seventeen or eighteen miles further up the river, as a crow flies, every plant was cut down by the frost, and some of them old bushes of twenty years' standing, were entirely killed, roots and all. This difference, I think, may in some measure be attributed to the brackish water in the estuary, which does not reach so far as Seggieden. The influence on plants, especially evergreens, owing to the presence of brackish water at the mouth of our larger rivers, I believe to be much greater than is generally supposed, from the fact that such water is of a higher temperature than either pure fresh water or the sea, it being a well-known law in chemistry that when two fluids of different densities come in contact, the temperature of the mixture is elevated for a time in proportion to the difference in density between the two fluids, from mutual penetration and condensation. Such a mixture is constantly taking place at the mouths of rivers that run into the sea, and the mixed water maintains a temperature two degrees warmer than that of the river or the sea—thus, no doubt, in some respect softening the temperature of the air with which it comes in contact, and so have a beneficial effect on vegetation."

A SATURDAY AFTERNOON AT WALTHAM.

I SHOULD like to be able to grow Roses of all varieties, and thousands of each; but this being impossible, the next best thing is to be able to see them in all their beauty under these conditions, and having had this privilege lately I want to try to tell your readers a little of what I saw in a few hours in Messrs. Paul and Son's old-established home of the Rose at Waltham Cross.

Arrived at the nursery and having found Mr. A. Paul, our first start was to the quarters devoted to new Roses and seedlings, and as we see the magnificent flowers that are ever and again sent out, we do not wonder that varieties which our forefathers esteemed so highly disappear from the catalogues and the exhibition stands. To begin with Waltham Roses, the first to attract attention was this year's novelty, Duke of Albany. At first sight this looks like Duchess of Bedford, but upon closer inspection it is seen to be quite distinct from that fine variety. The shape is different, and the whole flower darker, each petal being shaded with a beautiful velvety black—a splendid acquisition in all points, and I learn a free autumnal bloomer. Next came Pride of Waltham, a beauty of quite another stamp, being an addition to our light Roses. It is something like La France in colour, but a larger flower, of better form, and a stronger grower. Lady Sheffield is of a bright rosy colour, shaded lighter, with fine glossy foliage. Red Gauntlet, a free-blooming bright crimson rose, is sure to be much in request for beds while Queen of Queens, reserved for another year, will be bought by all who remember and love the true old Maiden's Blush, for it is simply an improved version of this old favourite, having the same perfume, the same continuity of blooming, with a stronger growth, finer foliage, and blooms often up to exhibition standard. Two very promising seedlings not yet sent

out are Lord Bacon, a fine dark, and Charles Lamb, a good light Rose.

Passing to the more general stock we come to a fine batch of Manetti maidens, very healthy; though not yet in full beauty, still there are plenty of blooms of A. K. Williams, and they are magnificent; surely this is the finest of all recent introductions. Constantin Tretiakoff, very fine indeed; Maurice Bernardin is still holding its own; Senateur Vaisse is also very fine. Capitaine Christy and Baronne de Rothschild seem as good as ever, while of the firm's splendid 1879 introductions, Duchess of Bedford and Countess of Rosebery, the display quite bears out the statement that they never have enough plants to meet all demands; and the three Maries—Baumann, Rady, and Finger—show that they well deserve the large space allotted to them. *Appropos* of the last-named and Eugénie Verdier, disciples of the "synonymous" theory will be likely to have their confidence shaken if they pay a visit to this establishment. First comes Mr. Paul, jun., with a strong negative to the statement of the two being alike, and an account of a visit last year to a Liverpool rosarian who had planted a bed with one hundred plants of each variety, the distinction being as plain as if the bed were divided by a path; and really as seen growing side by side here they are evidently quite distinct, and in point of depth of colour, freedom of bloom, and vigour of growth Mdle. Finger has the best of the contest.

Quitting this quarter we next visited the Teas on the De la Grifferaie, which, judged by the appearance of these plants, seems to be one of the best of all stocks for this class. There was a good number each of all the best varieties, all growing like Vines, and I was assured many of the plants would be over 6 feet high before the end of the season. Indeed, the shoots of that king of yellows, Maréchal Niel (which appears to do better on this stock than any other), had reached and exceeded that height already. In very fine condition also were Catherine Mermet, Niphotos, Innocente Pirola, and Madame Lambard, a grand addition, in colour particularly, to our Teas.

Some idea of the extent of the Rose business (which, be it remembered, is but one of many branches) of this firm may be gathered from the fact that all the plants seen at this nursery are but a very small selection, there being several acres devoted to them at Loughton, and a yet larger area of land at Framfield in Sussex.

From the outdoor quarters we adjourned to the houses, passing on our way thereto a splendid collection of Camellias ranging from magnificent specimens down to small plants in 32's, all in perfect health, maturing their wood and setting their flower buds. The first house visited had the roof covered with Maréchal Niel Rose, which, having flowered when cut back, was making fine growth for the production of blooms next year, the lower part of the house being filled with smaller plants of Teas in pots. The next house was filled with Tree Carnations to provide cut blooms all the year round. Another house was covered with Rêve d'Or, Cheshunt Hybrid, and other ramblers, and yet other houses for own-root Roses, grafted plants, &c.

In concluding these brief notes I must say one word as to the extreme courtesy and kindness both of Mr. W. Paul and his son. I had never met either of these gentlemen, and I did not go to the nurseries with a thousand-pound order in my hand. I simply went to look at their Roses, and yet no one could have been more warmly welcomed.

The object of my visit having been accomplished, I had the privilege of inspecting the fine horticultural library, and a walk round the garden attached to Mr. Paul's residence, which contains some grand old Elms, with bushes of York-and-Lancaster, Maiden's Blush, and other really old Roses. Altogether this garden is most enjoyable; my Saturday afternoon at Waltham was one of the pleasantest holidays I ever spent and one that will remain long in my memory.—A VISITOR.

ROYAL HORTICULTURAL SOCIETY.

JULY 25TH.

New plants were well represented at this meeting, but general exhibits were not abundant in the Council-room, though several interesting groups were staged in the conservatory.

FRUIT COMMITTEE.—H. J. Veitch, Esq., in the chair. One of the most remarkable exhibits was a grand collection of fourteen Pine Apples from Mr. D. Wilson, gardener to Earl Fortescue, Castle Hill, North Devon. They were all Smooth Cayennes, varying in weight from 7 to 9 lbs., the total weight being 104 lbs. 8 ozs. They were of great size, even, and in beautiful condition. A silver gilt Flora medal was recommended. Mr. R. Phillips, gardener to Captain Jackson, The Deodars, Mcopham, Kent, sent samples of Tomato Perfection, said to be a cross between Acme and Trophy. They were very even, and of good size

and colour. The Committee considered it very promising, and desired it to be sent to Chiswick for trial. Mr. C. Turner, Slough, sent six dwarf standard Red Currant trees, bearing an abundant crop of large bunches of fine fruits. Mr. J. Clarke, gardener to Lord Trevor, Brynkinalt, Chirk, Wales, sent a Cucumber, said to be the result of a cross between Blue Gown and Telegraph. The fruits were of moderate size and very even. Mr. G. Weedon, Ealing, also sent six fine fruits of Cucumber Best of All, which were considered promising, and the Committee asked that it should be exhibited again. Mr. Eckford, The Gardens, Sandywell Park, Cheltenham, exhibited several seedling Peas, which are to be tried at Chiswick. Mr. D. Brown, Linthorpe, Middlesborough, sent fruits of a seedling Strawberry named Duchess of Edinburgh, of conical form and large size. Mr. S. Castle, The Vineyard, West Lynn, King's Lynn, sent some bunches of Gros Maroc Grapes well coloured. Messrs. W. Paul and Son, Waltham Cross, were awarded a letter of thanks for a fine collection of Gooseberries, comprising over one hundred varieties. Mr. R. Laing, East Grinstead, sent a fruit of Green Gage Melon. Mr. C. A. Pearse, gardener to Sir F. Stapleton, Bart., Grey's Court, Henley-on-Thames, sent a Melon named Alexandra, a cross between William Tillery and Victory of Bath. Mr. T. Laxton, Bedford, sent samples of Richard I. Pea, John Harrison Long-pod Bean, Sir Beauchamp Seymour Strawberry, and Early Orange Vegetable Marrow, and Messrs. J. Hamlin & Co., Wood Green, had examples of good Mushroom spawn.

Messrs. Hooper & Co. offered prizes for the best dish of Abundance Tomato, which were secured by Mr. Phillips of Meopham, Kent, and Mr. S. Castle, King's Lynn, Norfolk, in that order, the first-named having neat even fruits of excellent colour.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Messrs. J. Veitch & Sons, Chelsea, exhibited several new plants, amongst which were the two hybrid Orchids *Lælia callistoglossa* and *Cattleya Chamberlainiana*, the former obtained by crossing *Lælia purpurata* with *Cattleya gigas*, and the latter a very attractive form with bright rosy crimson flowers, a cross between *Cattleya Leopoldi* and *C. Dowiana*, the first-named parent's characteristics predominating. *Lilium auratum platyphyllum*, a very large-flowered variety of this well-known Lily, was also well shown with the red-spotted *L. gloriosoides*, the yellow and maroon-spotted *L. Leichtlinii*, and *L. auratum virginale*, which was certificated. *Dendrobium bigibbum album* has long spikes of small white flowers; *Lastrea prolifera*, a Japanese Fern, has bipinnate dark shining green fronds 6 to 8 inches long; and *Begonia gogoensis*, a new species from Sumatra, was shown and certificated. Mr. J. C. Spyers, gardener to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, exhibited a collection of choice Orchids, several of which were certificated, and are described below. One, however, is especially deserving of notice—namely, *Mormodes luxatum eburneum*, which has creamy white fragrant flowers in a dense spike, the lip being hooded, with a central purple band. The column is also purple and strangely twisted sideways under the hood of the lip. Mr. H. Heims, gardener to F. A. Philbrick, Esq., Q.C., Oldfield, Bickley, was awarded a vote of thanks for a handsome basket of *Aerides affine superbum*, the plants bearing nine long spikes of rosy flowers.

Mr. C. Bennett, Kilmiston House, Shepperton, was awarded a cultural commendation for a fine specimen of *Olianthus Dampieri*, the growths bearing four or six trusses of flowers each. The plant was in excellent condition, the growths vigorous, and the foliage healthy. Mr. W. Williams, Sugnell Hall, Eccles, showed a variety of *Cattleya Eldorado*, having white fragrant flowers and an orange-stained lip. Mr. G. Weedon, St. John's Nursery, Ealing, exhibited several seedling *Lobelias* with very dark blue flowers and white centres. Messrs. W. Paul & Son, Waltham Cross, sent blooms of their new Hybrid Perpetual Rose Queen of Queens, of good size, excellent form, and clear pale rose tint. G. F. Wilson, Esq., Weybridge, was accorded a vote of thanks for large flowers of *Iris Kämpferi*, white and purple and very full. A vote of thanks was also accorded to Mr. R. Dean, Ealing, for a collection of *Antirrhinum* flowers of various colours.

In the conservatory several fine groups and collections were staged. Messrs. J. Veitch & Sons, Chelsea, exhibited a magnificent collection of border Carnations and Picotees, comprising about three hundred blooms, and representing a large number of handsome varieties in all sections. Messrs. W. Paul & Son, Waltham Cross, had ten boxes of Rose blooms representing some handsome varieties; Lady Sheffield, Marie Baumann, and others being fine. Two boxes of twenty varieties sent out from Waltham Cross were very interesting. One box of white Roses was also attractive, the varieties *Boule de Neige*, *Baronne de Maynard*, *Madame Lacharme*, *Madame Noman*, and *Olga Marix* were especially noteworthy. Messrs. H. Cannell and Sons, Swanley, Kent, exhibited an attractive collection of *Verbena* blooms, comprising many fine varieties. Mr. W. Howard, Southgate, sent a collection of *Carnation* and *Picotee* blooms. Mr. H. Hooper had two stands of handsome *Pansy* blooms. Mr. C. Turner contributing forty-eight grand *Dahlia* blooms, representing many of the best Show and Fancy varieties. Handsome groups of *Ivy-leaved Pelargoniums*, *Tuberous Begonias*, *Mignonette*, and *Achimenes* were contributed from the Society's Gardens at Chiswick.

First-class certificates were awarded for the following plants:—

Begonia gogoensis (Veitch).—A distinct species from Sumatra, with large peltate leaves 9 inches in diameter, of a peculiar metallic green colour on the upper surface, the veins being of a lighter shade

and the under surface bright red. The flowers are small and white or pinkish, the peduncles and pedicels being red.

Lilium auratum virginale (Veitch).—A beautiful variety, with large white flowers, streaked with yellow in the centre of the perianth divisions.

Compæretia macroplectron (Heims).—A pretty dwarf Orchid, with elliptical leaves 6 inches long and 2½ broad. The flowers are borne in short drooping racemes, three to five blooms in each. The sepals and petals are small, ovate, pale pink dotted with bright rose. The lip is 1½ inch in diameter, nearly circular in outline, but deeply cut at the apex, pale pink veined with a darker tint.

Renanthera matutina (Sir Trevor Lawrence).—A species of slender habit, with panicles of scarlet and orange flowers in panicles 2 feet or more long, each bearing two or three dozen blooms. The sepals and petals are narrow, orange spotted with scarlet or crimson.

Grammatophyllum multiflorum (Sir Trevor Lawrence).—A peculiar Orchid, with long lanceolate leathery leaves a foot long and 3 inches broad. The flowers are pale green heavily blotched with brown, and are arranged in racemes 2 to 3 feet long.

Compæretia falcata vera (Sir Trevor Lawrence).—Very striking and different from many varieties in cultivation, the lip being very large and bright orange-coloured.

Cattleya Whitei (Low).—This was stated to have been obtained from Brazil, and was provisionally shown under the above name. The sepals and petals are about an inch broad, of a dull purplish colour; the lip being rich crimson, slightly fringed, and bright yellow in the throat.

Phacelia campanulata (Mr. W. Thompson, Ipswich).—A charming dwarf herbaceous plant, 6 inches high, with heart-shaped dentate leaves 1½ inch broad, and racemes of deep blue bell-shaped flowers having a white centre.

Oncidium stelligerum (Sir Trevor Lawrence).—A distinct species, with inflorescence 3 to 4 feet long, having short lateral branches, each bearing three to four flowers. The petals are pale yellow blotched with brown, the lip being white, and the base a dull purple at the upper part.

Tropæolum Empress of India (Messrs. J. Carter & Co.).—A very dwarf and useful variety, with small dark green leaves and rich scarlet flowers produced very freely.

Dahlia Gem (Turner).—One of the Pompon section, with neat rich scarlet flowers.

ROSES AT WIRRAL.

IF ever Judges had their work cut out it was at Wirral on the 15th of July in the amateur classes. It is not often that when five boxes of twenty-four single trusses are staged the Judges are obliged to count the points of each box before deciding which two are to be set aside, and yet this was the case at Wirral. The Rev. Lionel Garnett had a grand twenty-four and still he was thrown out, but he had the reward of a special extra prize. His Harrison Weir alone was worth it. In the thirty-six singles the Judges had hard work. Again in the local classes the competition was very severe indeed, so much so that the Judges were obliged to call in the aid of the President and Chief Secretary of the National Rose Society in order that the judging might be finished before the public were admitted. This was my first visit to Wirral; may it not be my last. Certainly they are very enthusiastic in that quarter. It is all the Rose, the Rose, the Rose, and nothing but the Rose with them. I ventured to mention that my *Oenotheras Youngii*, *macrocarpa*, and *fruticosa* were in good bloom; but I was sent to Coventry at once for my presumption. If only the Wirral Society would adopt the National Rose Society's method with regard to exhibitors' numbers and cards, and if also the Society would "just for a change" invite exhibitors when their weather is somewhat fair, I think that "à Birkenhead" would be a very general cry on the part of all amateur and professional rosarian prizefighters.—J. A. W.

RHODODENDRON BALSAMÆFLORUM.

WHEN a cross was effected many years ago between the white Malaccan *Rhododendron jasminiflorum* and the buff Javan species *R. javanicum*, it was not anticipated that such remarkable results would follow, and that a race of plants so valuable would be established. Many of these beautiful "greenhouse Rhododendrons" are in commerce, and are deservedly popular, while others more beautiful still have been exhibited and honoured, but not yet distributed. We allude now to the single varieties, a typical example of which is *R. Taylora*, figured on page 349, vol. xxxii., of this Journal, the issue of May 10th, 1877.

During the present season a most distinct and remarkable advance has been made in these plants, for already three varieties with double flowers have been certificated, these having deep rose, rich yellow, and pure white flowers respectively, and two others quite distinct from them have expanded. It is natural to ask how such a result could have been effected, and by what

parentage such massive flowers and distinct colours could have been produced? The answer must be of a nature that could scarcely be anticipated, for all these varieties, each so double and so distinct in colour, were not only obtained from one pod of seed, but the flower that produced the seed was fertilised with its own pollen. Whence, then, have come the colours? This opens an interesting question—namely, the transmission of properties by some mysterious process that now and then asserts its existence in a striking and unexpected manner. For example, the colour of the flower of the yellow variety above referred to (*R. balsamæflorum aureum*) can only be accounted for by the employment of

a Bornean species, *R. Brookeanum gracile*, in hybridising some twenty years ago. The potency of that cross has been seen repeatedly in the buffs, orange reds, bronzy yellows, and other tints that have been produced in several single forms; but now for the first time it is reproduced in its integrity after a lapse of years, and in a double flower, the parent of which was an unnamed pink seedling, fertilised, as above observed, with its own pollen! Surely this is a strange result, and as Mr. Taylor, the originator of this race of *Rhododendrons*, remarks, “there is much to be learned and much to be done yet in hybridising.”

It was a little peculiarity in the flower that has been so singu-



Fig. 17.—RHODOLENDRON BALSAMÆFLORUM ALBUM.

larly productive that caused it to be selected for self-fertilisation, and thus a circumstance which the majority would probably have passed as trivial has, by being promptly and intelligently turned to account, produced what may be termed a new race of flowers, of which the specimen figured, *R. balsamæflorum album*, is a fair typical example. The individual flowers range from 2 to 3 inches in diameter, and closely resemble well-formed Gardenias, while the trusses are very large and appear to be freely produced. Well-grown plants of these double *Rhododendrons* must be very imposing, and will some day be seen contributing with great effect to the embellishment of conservatories.

To Mr. Heale, one of Messrs. Veitch's competent foremen, the

credit is due of raising the double forms in question, and also the fine single varieties that have been lately certified.

UNMANURED ROSES.—If those who did not agree with what I wrote advocating a more sparing use of manure for Roses were to see those here unmanured for years, and could just now compare them with others under precisely similar circumstances only very liberally manured, they would be compelled to own that for such a climate as has to be endured here heavy manuring is a real and a very apparent mistake. It is true the season has been very favourable for a vigorous growth, and spring found the plants well furnished with sound wood and plenty of prominent and unstarted buds.

All these things have been favourable, and the result is the best display of Roses ever seen here. So long as such results are attained it would be folly to go back to the old plan of heavy manurings, unripened wood, and killed or crippled bushes in consequence.—SINGLE-HANDED.

HORTICULTURAL EXHIBITION AT THE AGRICULTURAL HALL.—JULY 24TH TO AUGUST 5TH.

ON Monday last an Exhibition of a novel character was commenced at the Agricultural Hall, Islington. It is devoted to all kinds of appliances, implements, erections, heating apparatus, &c., not in competition, for no prizes, medals, or other awards were offered, as it was the object of the promoters to avoid giving distinctions confessedly difficult to determine that would render a few exhibits unduly prominent. Several trade exhibitors entered into the spirit of the venture, but some large firms are not represented. Heating apparatus, including boilers of innumerable forms, pipes, and valves are largely represented; ornamental, terra cotta, composition, and cast iron vases, fountains, and statues constitute another feature of interest, while garden chairs, tables, and summer houses, either of plain or rustic designs, have also considerable space devoted to them. Wire arches, temples, and flower stands, houses illustrating various modes of glazing, implements, a few groups of plants, and miscellaneous sundries make a diversified exhibition.

It is impossible to give a detailed report of all the exhibits, and we can only refer briefly to a few of the most prominent, at the same time recommending all who are interested in it to pay the Hall a visit before the Show terminates. As already stated, the vases and similar articles formed an important feature; but the collection from Mr. J. Matthews, Weston-super-Mare, is especially fine, including a very large and choice assortment of terra cotta vases, flower pots, window boxes, baskets, &c., of rustic and most ornamental designs. The admirable taste and finish distinguishing all these attracted much attention to the exhibit. Messrs. F. Rosher & Co., King's Road, Chelsea, also have a large collection of vases, statues, and edging tiles, the former being composed of a material similar in appearance to Portland stone, but really a composition said to be very durable. Some of the vases are of very graceful designs. Messrs. Pullham and Son, Broxbourne, have a rockery very tastefully arranged and planted. Real stone and tufa are employed, the construction being characterised by the picturesqueness for which the firm is noted. Mr. B. W. Warhurst, 33, Highgate Road, has a varied display and one of the most extensive. Several samples of patent boilers are staged, some of which, such as "Ben's Boiler" and the Paxton Independent, have been previously noted at Kensington and elsewhere. Another patent boiler termed the Monarch is a combination of an upright tubular with a conical, the tubes being surrounded by an outer iron casing. Samples of the Syphon Hygieic gas or oil stoves are shown, and are much recommended for heating small greenhouses or halls. Valves of various approved designs are also staged with two small houses, one illustrating the Eclipse system of glazing with lead bars without putty, and the other showing a mode of glazing without top putty.

Messrs. J. J. Thomas & Co., 87, Queen Victoria Street, have a large collection of wire stands, baskets, arches, &c., of most graceful and diversified designs. A number of neat and well-constructed garden seats are also staged by the same firm. Messrs. W. Richardson & Co., Darlington, have some small models of their wall-protectors, specimens of hooded tubular boilers, portable frames, and wooden Parisian greenhouse blinds, which consist of thin laths arranged on metal bands, and serving to effectually break the force of the sun's rays without rendering the interior of the house dark. The Thames Bank Iron Company, Upper Ground Street, S.E., have the largest exhibit of boilers and hot-water-heating apparatus, including valves, pipes, and other fittings. Messrs. Deane & Co., 46, King William Street, E.C., have considerable space devoted to vases, metal tables, garden chairs, metal barrows, water barrows, and various other appliances, all remarkable for their lightness and strength.

Messrs. Messenger & Co., Loughborough, have a large exhibit of boilers of various approved patterns, new valves, small frames or "plant protectors" as they are termed, a sample of the "amateurs' portable greenhouse," a neat span-roofed structure well-built and admirably adapted for a small establishment, with many other useful articles. The Pall Mall Lawn-edger Co., 15, Pall Mall, had specimens of Adie's Patent Lawn-edging Machines, which attracted much attention from the visitors. Messrs. F. Brangwin & Co., Hackney, contributed a large collection of well-constructed park and garden seats, ornamental tables, and numerous other exhibits.

Many firms besides those mentioned above also exhibited largely, but we cannot refer to their contributions at length, though the following list will give an idea of the principal features:—Mr. J. Trotman, Holloway, rustic houses, tables, and chairs. Mr. J. Keith, Edinburgh and Arbroath, hydraulic rams and patent boilers. Messrs. Bailey, Pegg, & Co., Bankside, and Brierley, Staffordshire. Messrs. Appleby & Co., Chesterfield, pumps, boilers, and pipes. Messrs. Grover & Co., London, house showing the simplex glazing system, with strips of lead in the place of putty. Mr. J. T. Anderson, Shore-ditch, seed bags, cordage, netting, &c. Mr. Conway Warne, Weston-super-Mare, terra cotta vases, pots, and baskets. Messrs. Smith and

Williams, 23, Farringdon Road, E.C., teak Orchid baskets of various forms and sizes. Messrs. Andrew Handyside & Co., London and Derby, a large collection of ornamental cast iron vases and fountains. Messrs. Jeffrey & Co., samples of ornamental ironwork, Rose temples, and flower stands. Coalbrookdale Iron Company, ornamental cast iron vases and flower stands of pretty designs. Mr. J. Lewis, Stamford Hill, examples of patent methods of glazing without putty. Messrs. T. H. P. Dennis & Co., Chelmsford, picturesque summer houses and glass houses. Mr. W. H. Lascelles, 121, Bunhill Row, London, a large span-roofed house glazed without putty, and a new material for rockeries. Messrs. Ewart & Son, 346, Euston Road, ornamental tiles for flower boxes. Messrs. Silig, Sonnenthal, & Co., Queen Victoria Street, London, "The Easy" lawn mower, chiefly notable for having open rollers of metal bars. Mr. W. Wells, Redhill, samples of his patent spray-diffuser. Mr. W. P. G. Phillips, Oxford Street, a handsome collection of glass and china vases and stands for the table. Messrs. Tracey & Sons, Ilford, a house showing their patent system of metal glazing. Messrs. R. Jenkins & Co., Rotherham, the "Duplex Cylinder," "the Victor," and other boilers. Messrs. John Crowley & Co., Sheffield, samples of "the Invincible Lawn Mower." Messrs. W. T. Allen & Co., Upper Thames Street, ornamental iron ware. Messrs. W. Edgcumbe, Rendle, & Co., Victoria Street, London, houses, showing their patent method of glazing without putty; and Mr. Deverill, Slough, exhibits his patent irrigator. Messrs. G. Neighbour & Son, 127, High Holborn and Regent Street, have a most extensive and interesting collection of hives, sections, honey-extractors, foundations, bee-feeders, honey, and various appliances useful to bee-keepers.

The two principal exhibitors of plants were Messrs. Cutbush and Son of Highgate, and Laing & Co. of Forest Hill. The former have a very large group of Laurels, Palms, variegated Maples, and small Conifers margined with grass, and small specimens of Retinosporas, variegated Euonymus, and Thuias; a collection of Rose blooms is also staged by the same firm. Messrs. Laing & Co. have a smaller collection, in which the Tuberous Begonias, Rose blooms, and black Grapes are the most notable.

Under the superintendence of Messrs. John H. Raffety, Shirley Hibberd, and W. H. Holmes the Show has been most satisfactorily arranged, and the very complete catalogue issued will be found useful to visitors.

EXHIBITING—THE GOOD OLD TIMES.

"OH for the palmy days of Chiswick! We shall never see the like again. There is no spirit now. The best growers will not exhibit if they cannot do so for prizes, and unless these are large showing does not pay." Who says this? Well, it is said and repeated almost wherever there is a gathering together of old and young exhibitors, and it is rather singular to observe how much the latter know of the "palmy days" in question.

Would those who are yearning after the impossible—the return of past days, be surprised to learn that the prizes offered at the fine old shows in question were less in value than are now provided either in London or at some provincial exhibitions? If my memory is not at fault such was and is the case. It is a long time, however, since I stood by the side of my exhibits when Prince Albert led his little boy, the Prince of Wales, by the hand, and the Queen was pointing out the beauties of the Show to the Princess Royal of Prussia, who was not then in her teens; and I cannot, therefore, remember the exact amounts that were provided in the classes, but I feel sure those amounts are exceeded now to a very considerable extent.

I have a recollection, too, that the prizes in those good old times were much less in the nurserymen's than in the amateurs' or gardeners' classes. It is impressed on my mind, for instance, that Messrs. Veitch on one occasion, and possibly on more, won the first prize for fifteen Orchids, which was £7, the second prize in the class being £4. In the amateurs' class the prizes were larger, but the aggregate amount was not equal to that apportioned in similar classes now, yet eleven collections and nearly 150 plants were staged at the Show in question. In one of the amateur classes Mr. Williams, then gardener to C. B. Warner, Esq., of Hoddesden, and now the esteemed head of the Holloway Nurseries, won a prize of £7 with twenty plants; and Mr. Kinghorn, then gardener to the Earl of Kilmorey, now the genial proprietor of the Richmond Nursery, secured a first prize of £4, the lowest prize in the same class being £1 15s. I am sorry to say I have not an old schedule of the Chiswick shows, but I feel certain my memory is accurate as regards what I have written, as, being interested in the classes in question, several things were rather deeply graven on my memory.

My showing days are over, but I often think of past times and compare them with the present. My views are old-fashioned perhaps, but I sometimes fancy there was not such a race for wealth then as now. I mean much was done for love then, that will only be done for money now. Exhibitors certainly cannot justly be blamed for this, for what may be termed the "paying"

aspect of exhibiting has not been brought about by themselves, but by the rivalry that has existed among societies. In London and the provinces a sort of auctioneering policy has been steadily pursued of late years, each making an attempt to overbid the other, until they have almost brought themselves into a state of bankruptcy. Not a few practically live on sufferance. Some are unable to pay the prize money at all, while others appear to find it necessary to postpone payment for a year, trusting, it would seem, to the "takings" of next year, with all their uncertainty, for paying the debts of this or last year that have been but too certainly incurred. I fail to see the wisdom of pledging the future in this manner, or pursuing a policy which seems in principle essentially unsound.

On what do the managers of societies thus conducted base their foundation? Theoretically, on the subscriptions of members no doubt; and if this principle were adopted in its integrity all would be well, but practically they leave this solid foundation to one weaker than sand—water, for they rely on the weather, and the consequence is that there have been some narrow escapes of drowning. It is to be feared that not a few societies, and some of high standing, are in the condition of a man living above his income, trusting to the charity of friends to extricate him from his difficulties that are sooner or later certain to overtake him; and what is the opinion of the prudence of a man like that?

There appears to be too clear evidence that societies have, in endeavouring to over-reach each other, during the past twenty years over-reached themselves; and what is the result? They have established a trade in exhibiting in which the chief object of the workers is to make money. These have a right to earn all they can, and wages have been kindly forced up for them. Accustomed to reap what has been so generously sown they are ever looking for still higher remuneration; and if, by whatever cause, it is found necessary to retrench and propose a reduction, those engaged in this trade, workmen-like, refuse to work, and fall in with the fashion of the times—strike.

I sometimes ask myself if the inevitable result of this high-pressure policy will not soon come to pass, for it is inevitable in all the affairs of life—a strong and united effort for self-preservation. At present societies are living an artificial life; the pace is too fast. Already a slackening is perceptible, and a reaction occurring. For a time the trade was stimulated by this strongly advanced, go-a-head, and showy policy—a policy of big posters and sensational programmes. Not satisfied with steady progress founded on an adherence to sound business principles, they have hurried onwards until it is a question if in the race for gain, and fame, and prestige they have not at least injured the goose that lays the golden eggs. And where is the gain from this neck-and-neck race? The committees of the several societies secure no advantage; they work hard, incur anxiety, and at times run the risk of loss, and for all their labours, given gratuitously, they are rewarded too often with a measure more or less large of abuse, as if committees were made to be grumbled at. It is quite certain, too, that the owners of hundreds of private gardens do not feel they are benefited by those great efforts that are made in exhibiting, and it is a question if the numbers of these are not increasing.

Not a few are beginning to observe that better all-round horticultural work is often to be seen in establishments unconnected with shows and showing than in many others where exhibiting would appear to be the chief object. The exhibitors themselves benefit, if they are successful, as they have a right to do, especially when they grow their own "stuff," instead of borrowing or buying it. Nurserymen have doubtless benefited immensely by exhibitions, not by the value of the prizes they have won—as these are and ought to be considered by them a small matter—but by bringing their products before the public who visit the shows, and to the notice of the thousands who do not visit them through the press. Perhaps it was this consideration that weighed with the committees of shows in the good old times—the palmy days, when allocating the prizes and devoting the lion's share to amateurs. In fact I think, but am not quite certain on this point, that no money prizes at all were given when the Chiswick Shows were about the zenith of their splendour. This was before I was an exhibitor, but I have a recollection of having heard that such was really the case.

I have alluded to the existence of a practice, that is with pretty good reason supposed to exist, of exhibitors obtaining prizes for products which they never grew. It is to be hoped that such a mode of gaining honour is not very prevalent; but whether it is so or not, far greater blame attaches to the societies than to the men who exhibit under their rules. Let us take the schedules of the Royal Horticultural and Royal Botanic Societies. If I interpret the rules and regulations correctly there is nothing to prevent me going to any of the nurseries and purchasing collec-

tions of plants, or to Covent Garden and obtaining as many dishes of fruit and vegetables as I like, and winning prizes with them if my exhibits are the best in competition. I may not have grown one plant, nor dish of fruit, nor plate of vegetables; yet if the products staged were better than those of an exhibitor who had grown his own "stuff," and he was awarded the prize while I was disqualified, the decision, strange as it may seem, would be illegal, and I believe that the production of a receipt in a court of law showing that I had paid for my goods would establish the perfect legitimacy of my purchased materials for competition in the show.

Is this as it should be? Is it encouraging horticulture in its best and truest sense and inciting to superior cultivation? Is it not rather sporting with the products of gardens, with the object of what?—making a show; and for what?—of getting money for paying the prizes that were perhaps won a year or more previously. Is not this system of management unsound? It appears like trading in bills of acceptance, as is practised by men of straw, who yet contrive to make a great display of wealth previous to the coming collapse. Are important horticultural societies setting a worthy example by opening their doors to such sporting practices as above referred to? By the present system is there not a danger of flower shows becoming so frequent, so common, and consequently so little appreciated, as to meet sooner or later the fate of spelling bees and skating rinks—namely, going out of fashion?

Yes, it would be well if the "palmy days of Chiswick" could return again. We want more showing for honour and less for mere gain. Estimating the value of garden products by the amount of money they bring in prizes is a practice of either sporting or trading which not a few societies are encouraging, and crippling themselves in the process. The result of this is that people are getting tired of shows and of showing, and if a reaction once sets in and becomes established it will not be good for horticulture either as a pleasurable and salutary home pursuit or as an important industry of the country.—A VETERAN.

NATIONAL CARNATION AND PICOTEE SHOW.

THE annual southern Exhibition of this Society was held in the conservatory at the Royal Horticultural Society's Gardens on Tuesday last, and though in some classes the competition was not so keen as it has been at some previous shows, yet the general quality was extremely good. Indeed, some of the veteran growers considered that the blooms were much above the average of exhibition quality. This certainly applied to a large proportion of those staged by Messrs. Dodwell, Douglas, and Turner, who shared the chief honours between them in all the chief classes. The first-named of the trio was particularly successful, the aggregate number of prizes won by him much exceeding the others. In many cases, however, where the Oxford, Slough, and Ilford blooms were staged together their merits were so nearly equal that much difficulty was experienced in determining their relative positions. There was considerable falling-off in most of the other collections which took fourth, fifth, or sixth-rate places, but all were distinguished by a clear bright appearance.

CARNATIONS.

For twenty-four blooms, not less than twelve distinct varieties, Mr. C. Turner, Slough, gained chief honours with a handsome collection of blooms, even, fresh, and bright, the following being especially noteworthy:—Wm. Laing, Rifleman, Lord Lewisham, Florence Nightingale, James Macintosh, John Keets, Jupiter, Squire Dodwell, Admiral Curzon, Sporting Lass, Jessica, Thomas Moore, Matador, John Hines, John Ball, Mrs. Matthews, Master Fred, and Rev. F. Tymons. Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, was a very close second, though some of his blooms were a little rougher than the preceding. The best were Robert Lord, a beautiful even bloom of good substance, which was selected as the premier Carnation; James Taylor, Apollo, James Douglas, Rob Roy, William Skirving, and Sarah Payne. E. S. Dodwell, Esq., Stanley Road, Oxford, was third with a fresh collection of good varieties; Mr. J. Hines, 81, Bramford Road, Ipswich, was fourth; and Mr. H. Hooper, Bath, fifth.

Mr. Douglas carried off chief honours with twelve varieties, having fine blooms of William Skirving, Florence Nightingale, Dreadnought, Earl of Stamford, Sarah Payne, Sportsman, Admiral Curzon, John Keets, J. D. Hextall, Annihilator, a sport, and a seedling. Mr. Dodwell followed closely with handsome examples of J. Douglas, Ben Simonite, Rifleman, Henry Cannell, Tim Bobbin, Master Fred, Florence Nightingale, and Harry Matthews. Mr. Hines was third; Dr. Abercrombie, 13, Suffolk Square, Cheltenham, was fourth; Mr. J. Buxton, 27, Manor Street, Clapham, fifth; and Mr. F. Cattley, Bath, sixth.

For six blooms Mr. J. P. Sharp, Perry Bar near Birmingham, was first; Master Stanley Dodwell second; and Mr. W. Slack, Queen Street, Chesterfield, third, all showing well.

SINGLE BLOOMS.—These were largely and well shown, about 150 blooms being entered in all the classes. *Scarlet Bizarres*—Mr. J.

Douglas first and second with Admiral Curzon, and third with Edward Adams; Mr. C. Turner fourth with Admiral Curzon, and fifth with Robert Lord. *Crimson Bizarres*.—Mr. J. Douglas first and second with Rifleman; Mr. C. Turner third with the same variety; and Mr. E. S. Dodwell fourth and fifth with H. K. Mayer. *Pink Bizarres*.—Mr. J. Douglas first and second with Sarah Payne; Mr. C. Turner third and fifth; and Mr. J. Hines fourth with the same variety. *Purple Flakes*.—Mr. J. Douglas first and third with Earl of Stamford, second with James Douglas, fourth and fifth with Florence Nightingale. *Scarlet Flakes*.—Mr. J. Douglas first, third, and fifth with Sportsman; Mr. C. Turner second with Matador, and Mr. E. S. Dodwell fourth with Scarlet Keet. *Rose Flakes*.—Mr. C. Turner first with Jessie; Mr. E. S. Dodwell second with Tim Bobbins; Mr. J. Douglas third and fifth with Rob Roy; and Mr. Gorton fourth with the same variety.

PICOTEES.

For twenty-four blooms, not less than twelve varieties, Mr. C. Turner well won chief honours with large blooms of good form. The leading varieties were Mrs. Chancellor, J. B. Bryant, Madame Corbin, Baroness Burdett Coutts, Louisa, John Smith, Constance Heron, Princess Dagmar, Mrs. Payne, Her Majesty, Queen of Summer, Muriel, Evelyn, Mrs. Gibbons, Mrs. Bower, Royal Visit, Imogene, and Portia. Mr. E. S. Dodwell took the second position with very creditable blooms, a few being a little weak. The best were Mrs. Wilson, Dr. Epps, Medina, Tinnie, Lady Louise, John Smith, Ethel, and Mrs. Chancellor. Mr. Douglas was third, also staging handsome blooms, amongst which was the premier bloom Mrs. Payne, very neat and even. Other good blooms in the same collection were Her Majesty, Brunette, Mrs. Gorton, Jessie, and Norfolk Beauty. Messrs. Hines and Hooper were fourth and fifth.

For twelve varieties Mr. E. S. Dodwell gained the chief award with large blooms of Tinnie, Mrs. Payne, Mrs. Chancellor, Clara Penson, Zerlina, Edith Dombrain, Ethel, Mary, Medina, Dr. Epps, Esther Minnie, and Master Norman. Mr. Douglas followed closely with a very even collection, Mr. J. Buxton being third, Mr. Hines fourth, Dr. Abercrombie fifth, and Mr. G. Duffield, Bramford Cottage, Winchmore Hill, N., sixth. There were seven entries.

For six varieties Master Stanley Dodwell; Mr. W. Slack, Queen Street, Chesterfield; and Mr. Sharpe were the prizetakers in that order with neat blooms.

SINGLE BLOOMS.—Like the single specimen class for Carnations, these were well represented. *Red, Heavy Edged*, 130 blooms being staged.—Mr. C. Turner first with Henry, Mr. J. Douglas second and fifth with Princess of Wales, third and fourth with Brunette. *Red, Light-Edged*.—Mr. C. Turner first and fifth with Thomas Williams, Mr. J. Douglas second with Mrs. Gorton, and third with Violet Douglas; and Mr. E. S. Dodwell fourth with Thomas Williams. *Purple, Heavy-Edged*.—Mr. C. Turner first with Muriel, third with Mrs. Chancellor, and fifth with Zerlina; Mr. J. Douglas second with Mrs. Chancellor and fourth with Alliance. *Purple, Light-Edged*.—Mr. E. S. Dodwell first, fourth and fifth with Mary; Mr. C. Turner second and third with Clara Penson and William Fulton. *Rose or Scarlet, Heavy-Edged*.—Mr. J. Douglas first and second with Mrs. Payne, Mr. C. Turner third and fourth, and Dr. Abercrombie fifth with the same variety. *Rose or Scarlet, Light-Edged*.—Mr. C. Turner first and second with Evelyn, and fifth with Lady Carrington; Mr. J. Douglas third with Miss Lee and fourth with Mrs. Allcroft. *Yellow Ground*.—Mr. J. Douglas first, second, third, and fourth with Ne Plus Ultra; Mr. H. Hooper fifth with Sir F. Roberts.

SELS, FANCIES, OR YELLOW GROUNDS.—For twenty-four blooms of not less than twelve varieties Mr. C. Turner won chief honours with superb blooms of Jessica, Etna, W. P. Milner, Unexpected, Sybil, Elegante, Robert Scott, Lady Rosebery, Géant des Batailles, Constance, Albert, Duchess of Connaught, Lord Lewisham, Fred, Rosa Bonheur, Lady Stamford, Matador, and Harry Bertram. Mr. J. Douglas was a close second with brilliant blooms, and Mr. H. Hooper was third.

For twelve blooms, distinct varieties, Mr. E. S. Dodwell won the chief position with fine examples of Sarah Payne, Mercury, Dr. Hogg, John Soper, and Purple King. Master Stanley Dodwell was second, Mr. G. Duffield third, Dr. Abercrombie fourth, Mr. H. Cattley fifth.

For twelve yellow-ground Picotees Mr. J. Douglas was placed first with fine blooms of Mr. Colman, Ne Plus Ultra, Lightning, Alice, Princess Beatrice, Prince of Orange, and Eleanor. Mr. H. Hooper was second, the best in his stand being Crown Prince, Mrs. Moore, Harry, and Glow-worm. Mr. H. Cattley was third with similar blooms.

Plants in Pots.—For twelve specimens in 8-inch pots Mr. C. Turner took the lead with well-grown plants bearing three to six flowers each. The best Picotees were Her Majesty, Miss Small, Lady Boston, Constance Heron, Louisa, Queen of Summer, Mrs. A. Chancellor, and Mrs. Payne. The best Carnations were John Ball, Admiral Curzon, and Jupiter. Mr. J. Douglas was second, his plants bearing more flowers but rather smaller than the preceding. Carnations Rose of Stapleford, Joseph Crossland, H. K. Mayer, and Mayor of Nottingham were the best, the finest Picotees being Mrs. Bonar, Zerlina, and Brunette.

New Varieties.—There was good competition with seedling Carnations and Picotees, Messrs. Dodwell and Douglas taking each two first and two second prizes in the former, and one first and a certificate

in the latter. First-class certificates were awarded to the following varieties:—

Carnation Tim Bobbin (Dodwell).—A bright rose flake of good form and substance, heavily coloured.

Carnation Florence.—Twelve blooms of this were shown by J. A. Wallington, Esq., Manor House, Trowbridge. It was stated to be a good bedding variety. It is a buff yellow self, the blooms large, full, and slightly fringed.

Carnation Mrs. Page (Duffield).—A pretty self variety, with fringed petals of a delicate pale pink, nearly white hue. Very full and of good form.

Picotee Mrs. Gorton (Douglas).—A light red-edged variety, bloom even and full.

Picotee Esther Minnie (Dodwell).—A light rose-edged variety of similar substance and merit to the preceding.

FERNS FOR BASKETS.

OF late years much attention has been paid to Ferns and their allies by plant-collectors, and their exertions have enabled lovers of this class of plants to form extensive collections. According to Mr. John Smith, ex-curator of the Royal Gardens, Kew, the Ferns grown at Kew in 1823 numbered about forty hardy species and about the same number of tender exotics. Mr. Smith states that in 1825 he arranged the tender Ferns at the end of a lean-to house, the space they occupied being 12 feet by 6 feet. Since that time the collection has undergone great changes, for now they occupy two houses. For the tropical species a house of no small dimensions is set apart for them, and one of much less size is devoted to the cooler-growing kinds. No doubt in 1825 the Kew collection was as rich in species as any in the country, and by the aid of different expeditions and plant-collectors despatched from Kew the number has steadily increased since that time. That we are greatly indebted to the noted pteridologist, Mr. John Smith, none will deny for the introduction of many new species of Ferns, for when he was in office as curator he worked long and hard at the science, and was successful in raising many new species from spores that he collected from dried specimens sent home by different collectors from various countries.

Everyone is well aware of the usefulness of many of the more common species of Ferns. In fact, Ferns are indispensable. As a proof of this, how few establishments in this country do we find that have not at least a small collection of the most useful and ornamental kinds. For furnishing purposes they are extensively used. In fact, they are indispensable, and some market growers make them a speciality. I would now like to draw attention to a few species that are most suitable for hanging-baskets. I will name a few that I have grown for some time with good effect. Some of the species mentioned will be suitable for large baskets and thrive in a comparatively cool house, whilst some of the more tender kinds are well adapted for smaller baskets and warmer quarters.

I have tried several *Adiantums*, and amongst those I like best is *Adiantum concinnum* var. *latum*, a variety that Messrs. Veitch sent out some years ago. It is, however, a semi-deciduous Fern, losing a quantity of fronds through the winter season. It is very useful either for pots or baskets. The graceful manner in which the fronds hang over the sides of the baskets renders it a desirable acquisition for either the warm or cool stove. *A. concinnum latum* is a more robust plant than the type. The stipes are about 12 inches long, shining and black. The entire fronds are between 2 and 3 feet long and from 12 to 15 inches broad. It grows much better in a compost of sandy fibry loam with a little leaf soil than it does in the soil generally used for Ferns. By using a stronger soil for *Adiantums* the pinnae come much finer. The typical form is rather widely distributed, and found growing in tropical America from Mexico to the West Indies southward to Peru and Brazil.

A. Williamsii is better suited for baskets than pots on account of the rather slender arching stipes, and somewhat resembles *A. chilense*. The caudex is creeping, and soon travels to the side of the pots. In the event of its habit being the same in baskets, which in all probability it will, this will make one of the best of *Adiantums* for baskets. As soon as the rhizomes travel to the sides of the basket they should emit young fronds, and no doubt grow through the sides and bottom of the basket. The young fronds as they appear, and until they are fully developed, are covered with a yellow sulphur-like dust; as the fronds get matured they lose this character. This is its first season in a basket, and so far it has more than realised my expectation. It thrives well in a cool stove temperature, although it is a native of Peru, and found growing on mountains at an elevation of 12,000 feet.

A. peruvianum is a noble Fern, and well adapted for baskets; it is compact in habit, a very fine and well-marked species. It is by no means common in collections, and richly deserves to be

more extensively grown. As the specific name implies it is a native of Peru. I find it succeeds remarkably well in a cool stove temperature. *Asplenium cicutarium* is an extremely handsome Fern either for pots or baskets, and in the opinion of many is the most handsome of the genus. In a well-grown plant the fronds attain the length of about 15 inches, and from 4 to 6 inches broad, with from ten to fifteen horizontal pinnae on each side; the texture is rather thin, and a very pleasing bright green colour. The fronds arch gracefully over the sides of the basket, and is a great acquisition to the warm fernery. It is a native of Tropical America, and delights in a warm humid atmosphere.

Asplenium longissimum is a very useful Fern for baskets, in fact that is the only way in which it can be satisfactorily grown. For lofty situations this is one of the few Ferns that is really suitable. The fronds droop immediately over the sides of the basket, and hang down to a length of 6 or 7 feet. This is one of the prolific species, forming young plants at the end of each frond. After the young plants are formed the stock can readily be increased by taking the young plants off with a small portion of the frond, and pegging them down on a pot filled with sandy soil. It is a native of Java, Borneo, Malacca, and Mauritius, and grows best in a cool stove temperature, although I have a plant in the greenhouse doing fairly well, but not so free-growing as the plants in a higher temperature.

A. furcatum answers well for a large basket. This is a well-known species, and common in collections; it is a rather strong-growing species. The fronds grow to a length of between 18 inches and 2 feet long, and from 4 to 6 inches broad. It is a very accommodating Fern, and answers well either in a cool stove or greenhouse temperature. *A. flaccidum* is another well-known species, and a very useful Fern; for basket work it is amongst the best natives of Australia and New Zealand, and seems quite at home in a cool temperature. In a well-grown plant the fronds grow to a length of between 2 and 3 feet, and from 4 to 8 inches broad.

Davallias are numerous, many of which answer better in baskets than pots. Amongst the number I have grown and which do remarkably well are the following:—First, which is a great favourite with most people, and what is commonly known as the Hare's-foot Fern, *D. canariensis*, is too well known to need much said in its favour. The stout creeping rhizomes, which are densely covered with pale brown linear scales, are very suggestive of a hare's foot, from which character it has its local name. The rhizomes creep over the surface, sides, and bottom of the basket, sending out at intervals its quadripinnatifid fronds, which are nearly 18 inches long and a foot broad. It is a native of the Canary Islands, N. Africa, and Madeira, and always thrives in a rather cool temperature.

D. ciliata is a most valuable plant for baskets, and should find a place in every collection. The rhizomes are much the same as *D. canariensis* but not so thick, and densely covered with sharp-pointed ferruginous scales. The deeply cut lanceolate fronds grow nearly 2 feet long, and from 6 to 8 inches broad. The rhizome travels over the surface, bottom, and sides of the basket; as they extend they should be pegged in close to the basket; at intervals they send out fronds which look exceedingly pretty growing in different directions. Being a native of the Philippine Islands it requires a stove temperature.

D. immersa is a handsome Fern for a basket or pot work. Before the young fronds are perfectly developed they have a peculiar brown tint, and to a stranger look as though they have suffered some injury. The tripinnate fronds measure from 12 to 18 inches long and 6 to 9 inches broad, and are very useful for cutting purposes. The rhizome is wide, creeping, and peculiar in developing underneath the surface of the soil. There are several other *Davallias* that are well adapted for basket work, such as *D. chaerophylla*, *D. dissecta elegans*, *D. hirta cristata*, *D. Mooreana*, and *D. repens*.

For large mixed baskets the *Nephrolepis* are exceedingly useful, *N. exaltata*, *N. acuta*, *N. cordifolia*, and *N. davallioides* are all worth growing. *N. davallioides* var. *furcans* is a valuable Fern, and well deserves to be grown in a basket; the large drooping fronds furnished with pinnae of great size and substance renders it a desirable plant in any collection.

Polypodium peetatum var. *Paradisæ* makes a splendid basket Fern, and well suited for a position where a spreading plant is required. In pots it appears out of its element, for the fronds with me grow about 4 feet long, slender, and gracefully arched; the frond is cut down to the rachis into close blunt horizontal pinnae. This variety is a much more handsome Fern than the type; it is a native of the West Indies and Mexico, and grows well in a stove temperature.

Polypodium (Goniophlebium) subauriculatum is amongst the most suitable of all Ferns for baskets. It requires to be suspended

in a rather lofty position on account of the long pendulous fronds, which attain the length of nearly 8 feet in a well-established plant. It is a rapid-growing Fern, and when once thoroughly established soon makes a handsome specimen. It has a wide creeping rhizome covered with dull brown scales. The rhizomes often grow through the sides of the basket, in time sending out fronds. The pinnae are about 4 inches long and three-quarters of an inch broad. It is a native of the East Indies, and widely distributed, therefore enjoys a warm stove temperature.

Woodwardia radicans is a well-known species, and well suited for pots or baskets. It is a strong-growing Fern, and when growing likes copious supplies of water. For the conservatory or greenhouse it is invaluable. The fronds grow from 4 to 6 feet long and from 12 to 18 inches broad. The old fronds are prolific, producing young plants at the points. If grown in a basket it should not be crippled for root room, using good rich soil for the occasion.—AQUILINA.

MILTON ABBEY, DORSET.

THE seat of Charles J. S. Hambro, Esq., D.L., is about seven miles south-east of Blandford, and eleven miles north-east from Dorchester, delightfully situated in one of the most picturesque spots surrounded by hill and dale. The road leading to Milton is for the most part up hill, so that before reaching our destination we had risen to a considerable height. Turning which way you might every yard of the road seemed to present a fresh picture, and from the top of one of the heights called Houghton Hill the sea is visible. After leaving this we pass along an almost level road to the Abbey through the village. Turning sharp to the right down a steep declivity we are at once attracted by the beautiful picture. The trees in the background to this beautiful picture might be said to resemble a horseshoe, we entering at the heel end, with the lofty trees surmounting the hills right and left, and in the distance beyond the village in front.

As we pass the village we come more closely to what has been the foreground to our picture, at the base of which there is a considerable piece of water which we leave to the right, passing through the lodge along the other side of the lake a considerable height above it, along the carriage drive into the open park, and enter the garden. There we were met by the gardener, Mr. Goodall, and conducted into one of the houses which form a group; two span-roofed houses extending north to south forming the outer boundary to the heated pits, span-roofed Cucumber and Melon houses, and span-roofed stove, which stands between them, facing the south.

Passing through a Peach house containing large well-furnished and well-fruited trees, we entered a greenhouse filled with Camellias, Orange trees, Ericas, Epacrises, and other hardwooded plants, also some healthy well-grown plants of Show Pelargoniums, which were bright with bloom. Turning to the heated pits, four ranges in all, in which were growing some suitable plants for winter flowering, such as *Begonia nitida alba* and *rubra*, *B. fuchsoides*, *Poinsettias*, and that new favourite *Nicotiana affinis*, of which there was a good batch. Cucumber and Melon plants were the principal occupants of the remaining. A small span-roofed house in two divisions next received attention; the first division containing the second batch of Melons for this season, the other was devoted to *Stephanotis* trained to the roof, *Gardenias* in variety, *Tabernaemontana coronaria*, and others. A span-roofed stove contains a number of healthy plants. Covering part of the roof is a very large plant of *Passiflora quadrangularis* bearing a number of fruits as large as full-grown fruits of Queen Anne's Pocket Melon. There were also many other kinds of climbing plants, including *Jasminum Sambac*, which is a great favourite there, and *Allamanda Hendersoni* grandly flowered. Noticeable among the other plants were some large highly coloured specimens of *Croton variegatus*, and also a number of smaller specimens suitable for decoration, all equally well coloured, and including many of the newest kinds; there were also a number of healthy *Dracenas*.

A range of span-roofed vineries on the opposite flank to the Peach house and greenhouse is in three compartments, the first containing several kinds, including Muscat of Alexandria, Madresfield Court, Duke of Buccleuch, well set; and Waltham Cross, also well set and bearing some enormous berries. The next division contains Black Hamburgh, and the third has Lady Downe's, Trebbiano, Gros Colman, and Black Alicante, all bearing large bunches and in excellent health. The other glass structures consist of three lean-to houses, two of which are occupied with Black Hamburgh Grapes, and the third with Figs; the varieties are Brown Turkey and Negro Largo, the latter a great favourite. At the back of this house Tomatoes were bearing an excellent crop of fruits. The kitchen garden, which is about four acres in extent, is in two divisions, and subdivided by Hornbeam hedges, which form a background to a spacious herbaceous border very rich in rare and choice plants.

Returning from the kitchen garden we cross the park to the mansion, a massive square building of Portland stone, with a courtyard in the centre. On one side of this mansion, and between it and the Abbey church, is a very large conservatory, the roof of which was covered with *Tacsonia Van-Volxemi* and other climbing plants, and

beneath were some healthy well-grown Palms. The beautiful marble statuary, the fountains, and the beautiful inlaid stone floor, are quite in keeping with the general style. Passing on to the flower garden, where there are some very prettily filled beds, part of which were in the carpet style, others prettily filled with old proved favourites that are indispensable in every garden; one bed of Tuberos-rooted Begonias was particularly attractive. The walks around the different parterres are composed of Derbyshire spar, broken slate, and ballast, which has a very pretty effect. Standing at this point and looking upon the abrupt rising ground, before us is a very noticeable border of a rectangular shape, the outer band of which is composed of Box bushes, then a band of Aucuba japonica, and the central portion is filled up with Mahonia japonica; the whole, being cut even with the knife, always looks well both winter and summer.

There is a walk along the top of this, approached by means of steps at one end, and hidden from view by the overhanging branches of a tree, under which were growing luxuriantly the common Vinca and Scolopendrium vulgare, forming a carpet. At the top of this elevated ground a commanding view of the flower garden is obtained. Following this walk it eventually leads us into the wild garden. Romantic as such places usually appear, it is in this case greatly improved by being close by the remains of a Benedictine monastery. Standing on this commanding ground fine views of the magnificent hills clothed with beautiful woods are obtained, with glimpses of some curious old ruins in the distance, almost hidden by the growth of Ivy.—A TOURIST.

WEST OF SCOTLAND ROSE SHOW.

JUST on the eve of going to press we have received a report of the Show held at Helensburgh on the 20th inst., which for the reason indicated we can only publish in an abridged form. A novelty in this year's Exhibition was the introduction of Pansies and Pinks, those shown by Messrs. W. Paul & Son, Paisley, eliciting great admiration. The display of Roses was magnificent, Messrs. Alex. Dickson & Sons, Newtonards, Ireland, securing the gold medal for forty-eight distinct varieties; while Mr. Hugh Dickson, Belfast, carried off the premier prize for thirty-six distinct sorts. The number of Rose blooms in competition was 1408, and of Pansies and Pinks 468. For twelve blooms of Tea or Noisette Roses, distinct sorts, Mr. A. H. Gray, Dunkeld, was first; and G. P. Hawtrey, Esq., Aldin House, Slough, second. For thirty-six blooms of Roses, distinct varieties, open to Scotch growers only, Mr. Wm. Parlane, Row, secured the first prize, a silver medal and £3, with grand flowers. The same exhibitor was the most successful with twenty-four blooms.

Pansies.—These, as already stated, were largely shown. For twenty-four Fancy Pansies, distinct varieties, Messrs. William Paul & Son, Crossflat Nurseries, Paisley, were first, staging large brilliant flowers of excellent varieties. Mr. D. Findlay, Lennoxton, was second, also with good blooms; Mr. James Barr, Paisley, being third. For twenty-four Show Pansies, distinct sorts, Mr. James Barr was first with smaller blooms than those in the second-prize stand, but of fine quality. Messrs. William Paul & Son followed closely. For twenty-four Show and Fancy Pansies, distinct (open to gardeners and amateurs), Mr. D. Findlay was first with fine flowers; Mr. R. Millar, Paisley, second; and Mr. D. Malcolm, Kirkintilloch, third.

For twelve Pinks, distinct varieties, Messrs. W. Paul & Son and W. Parlane were the prizetakers.

THE EXPERIMENTAL GARDEN AT GIRTFORD.

A FEW days ago we were much interested in visiting Mr. Laxton's Experimental Garden at Girtford, between Sandy and Blunham. The principal work carried on there is the raising of new vegetables, fruits, and hardy flowers, the staple in each department consisting of Peas, Strawberries, and Roses, to the cross-breeding of which Mr. Laxton has for many years given special attention. As the raiser of the Peas William I., Supreme, Omega, Fillbasket, Marvel, and other varieties now largely grown for market, Mr. Laxton's name is best known. This class of vegetable is still under his care with a view to improving the quality and appearance, as well as increasing the hardiness and fertility of sorts suitable for market. The strains selected for working upon are William I., Dr. Hogg, Telephone, Marvel, John Bull, British Queen, and Ne Plus Ultra, which have all been intercrossed and also crossed with various hardy and fertile varieties. The results are some new sorts of very handsome appearance, the pods being large, well filled, and of an attractive deep green colour. A new dwarf Pea named William Hurst, although not much exceeding a foot in height, is very early, and the fine long pods almost conceal the rest of the plant. This is considered a great improvement upon Little Gem. Altogether there appear to be many hundreds of varieties to select from, the very best only being retained. Agricultural Peas have also been worked upon, and a new early Maple or Partridge Pea, three weeks at least in advance of the old Maple variety, has been obtained. There are also Peas with black, white, and striped pods, and Crown or Mummy Peas with almost all coloured flowers.

In Broad Beans some fine long-podded varieties, with the pods well filled and produced in abundance, have been secured by crossing the hardy Mazagan Bean with a long-podded but somewhat tender sort of Mexican origin; and handsome dwarf sorts have been obtained

by breeding between the latter variety and Beck's Dwarf Gem. Runner Beans have also been taken in hand, and a very fertile and large-podded variety obtained by crossing the Champion Scarlet Runner with a large White Russian variety.

The Potato is now also an object of Mr. Laxton's attention, with a view to raising varieties of higher quality and early maturity, and with stronger powers of resisting the attacks of the Peronospora, so destructive of late years to the Potato crop. For this purpose the Victoria, Myatt's Prolific Ashleaf, the Jersey Fluke, and most of the useful market sorts, have been crossed with the Scotch Champion, Magnum Bonum, and other woody-stemmed sorts, generally more capable of withstanding the disease. A cross between the Victoria and the Champion is especially noticeable, as bearing out the hoped-for results. The early-ripening English market sorts have also been intercrossed with the best of the American varieties, with a view to obtaining increased fertility combined with the better quality of the English sorts.

A new early Vegetable Marrow, of the bush type, called Early Orange, has been raised by crossing the Custard with Hibberd's Prolific. Rhubarb is being advanced by crossing the Monarch, Victoria, and other large late sorts with the small but very early crimson sorts, so as to get more size combined with colour in the very early Rhubarb. Asparagus of the large French type, and of course, in Bedfordshire, the Onion, are not neglected by Mr. Laxton, who has some very fine strains of both these vegetables. Large numbers of seedling Strawberries attest what Mr. Laxton is doing in the department of hardy fruits. These are mostly the offspring of crosses between Black Prince, Vicomtesse Hericart de Thury, President, Sir Jos. Paxton, Sir Charles Napier, and British Queen, some of them being also from crosses between these varieties and the best of the American and continental sorts. Several seedlings, combining earliness with increased size, quality, and fertility, are shortly to be offered to the public. A variety called Pioneer, raised by Mr. Laxton, is now becoming much appreciated as a market Strawberry.

The hardy American Vines are also being crossed with the best-enduring English sorts and continental vineyard Grapes, with the object in view of obtaining new varieties which it may be possible to ripen in the open air in higher latitudes and in colder seasons than has been attained of late years in England. Mr. Laxton, although somewhat disheartened by the recent cool and sunless seasons, is not altogether discouraged in the hope of yet being able to provide a Grape which may again give us vineyards in England. A very handsome and free-bearing new Apple, named Schoolmaster, and which recently received a first-class certificate from the Fruit Committee of the Royal Horticultural Society, will shortly be issued from the Girtford Garden, and several distinct seedlings are being worked.

As a raiser of new Roses the name of Mr. Laxton has long been familiar to Rose-growers. The varieties Annie Laxton, Charles Darwin, Mrs. Laxton, Empress of India, Emily Laxton, Marchioness of Exeter, Mrs. Harry Turner, and many others of his raising are much appreciated both as garden Roses and on the exhibition stands. Mr. H. B. Ellwanger of Rochester, New York, in his recent carefully written work on the Rose, says that the Roses of this raiser are best adapted of all the English sorts to the American climate. All Mr. Laxton's Roses are bred in the open air, and consequently he has been able only to grow from the hardiest varieties. Although otherwise under a great disadvantage, especially during the many cold and wet summers we have recently passed through, rendering a good deal of labour in attempting to ripen seed futile, some fine seedlings containing the blood of that hardy variety Gloire de Dijon intercrossed with Roses of the dark Hybrid Perpetual race, will shortly be forthcoming. Many minor matters in flowers have not escaped Mr. Laxton's attention. Formerly the double Zonal Pelargonium was within the scope of his labours, the well-known Dwarf Jewel having, with many others, been raised by him. But latterly Mr. Laxton's object has been to condense his work, and to endeavour only to improve such horticultural plants as are of general and increasing utility, and such as are likely to make experimental gardening remunerative as well as interesting. In appreciation of Mr. Laxton's labours in cross-breeding, the late Mr. Charles Darwin was a contributor towards the establishment of the garden at Girtford.—(Bedfordshire Times.)



KITCHEN GARDEN.

WHERE it is desired to have a supply of Lettuces in winter after that outdoors is stopped by frost, a sowing should now be made in frames or in a sheltered position, so that a frame and lights when necessary can be placed over the plants, and such protective material afforded as may be deemed expedient to exclude frost; but where it is imperative to have a supply of Lettuce in winter for salad a heated pit is necessary. The seed should be sown where the plants are to

remain. The rows may be 9 inches apart for the Cabbage varieties, of which the best are All the Year Round and Stanstead Park. Of the dwarf Cabbage or Tom Thumb class Commodore Nutt is an excellent sort, and may be sown in rows 6 inches apart, the plants being thinned to that distance asunder. Of the Cos varieties Bath or Brown Sugarloaf and Hick's Hardy White stand well. These should be sown in rows 1 foot apart, and thinned to 9 inches asunder. The soil should be rich and firm, so as to secure a sturdy habit. Keep the surface stirred, and dust well about the plants with charcoal broken up small, ventilating whenever the temperature outdoors is over 35°.

In order to obtain a supply of French Beans when those in the open ground are cut off by cold a sowing should now be made in a pit having hot-water pipes, so as to maintain when necessary a temperature artificially of 55° to 65°. The soil for these should be rich and light, but made tolerably firm, so as to induce a sturdy habit and free bearing. The rows should be 18 inches apart, and the plants thinned to 9 inches apart, which answers for such kinds as Osborn's Forcing and Sir Joseph Paxton, but Negro Long-podded and Canadian Wonder should be given 6 inches more distance between the rows. The lights will not be needed until the close of September, perhaps not then; but when the plants flower protection must be given from heavy rains and frosts. Free ventilation is essential.

Although there are serious complaints about the Potatoes being infested with disease in many localities, so far as we have seen it is that form of the disease known as "the curl." Any early kinds that have the skins set should, when the disease manifests itself in the foliage, be at once lifted, sorted, and those required for use kept in a cool dark place, those for seed having a cool but light position. If there be any disease in the tubers it will develop rapidly under exposure. The haulm should at once be burned. Ground thereby set at liberty should without delay be planted with late Broccoli, Coleworts, Borecole, Savoys, or what may be considered necessary to assure a good supply for winter; also late crops of Celery. Of the latter we find none to stand the winter so well and late in spring as Sandringham White and Williams' Matchless Red. Place out in a sheltered border a good breadth of Cauliflower from the late sowing, which, if the early winter be favourable, will afford useful heads, but be chiefly valuable from affording heads of the size of a small teacup for lifting and placing in pits or elsewhere to continue the succession through the winter.

Notwithstanding that all available space should be occupied with Brassicas as above indicated, also with Lettuces, Endive, &c., yet ground must be reserved for Winter Spinach and Tripoli Onions. This should be prepared by manuring and digging, and where the soil is rich and light it should be made moderately firm. Periodical sowings will still be needed of Mustard and Cress, also Radishes at intervals, according to the demand.

Celery can hardly have too much water or too much liquid manure, only it must not be given too strong. Early crops will need to be earthed as the plants advance, always doing so when they are dry, keeping the soil from the centres of the plants, and giving, if needed, a thorough watering before earthing. If there is any appearance of Celery fly remove the worst infested leaves, burning them, and whilst the foliage is wet dust freely with soot. Lettuces will need plentiful supplies of water, and to ensure well-blanching heads tie up the Cos varieties at intervals and when dry. Asparagus, Seakale, and Rhubarb can be freely supplied with liquid manure now, which will enable them to develop good crowns. All decayed leaves and spent flower stalks of Globe Artichokes should be removed, and the spring-planted to afford a late summer and autumn supply of heads be well mulched and supplied with moisture. Where it is contemplated to form new plantations of Asparagus, seedlings of this or last year may now be planted. It prefers a deep rich sandy soil, or one that will allow of the water percolating through it freely. For ordinary purposes 4 feet beds, with three rows of plants in each and 2 feet alleys between the beds, answer well. Supply water if the soil is dry, and the plants will be well established before winter. They succeed better than plants of the same age put out next spring. Indeed, spring planting, unless it be deferred until the "grass" is grown about an inch, is the worst of all times next to winter to move Asparagus.

FRUIT HOUSES.

Vines.—Early houses from which the Grapes have been cleared should be kept cool and well ventilated, the border fairly moist, not saturated, nor on the other hand allowed to become parchingly dry. An occasional syringing will be useful in clearing the foliage of red spider and dust. With a view to the preservation of the foliage and prevent undue development of the fruit buds for next year's bearing shoots a moderate lateral growth may be allowed, otherwise if the foliage be healthy keep them closely pinched. It is wonderful to see the effects of a year's rest on Vines that have been forced for say ten years to afford ripe fruit in May, but it is more marked when young canes are trained to displace the old, which is seen in the season of growth on the crop of the season, and more decidedly in the next by the larger bunches, finer and better finished berries. This should not be done more distantly than every ten years, but of course where the extension system can be practised it is not necessary; indeed by cutting away long bare spurs and laying in young wood much may be done to keep the Vines in a satisfactory condition over a lengthened period, although the growth is made when climatic conditions are most unfavourable, or from December to May inclusive. Generous treatment is essential. A top-dressing should annually be given, the old soil or mulching being removed down to and picked out carefully from amongst the roots. Fresh turfy loam where it can be obtained should be supplied in place of that removed, to which about a fortieth part of bone meal has been added. It should be made firm, and a good watering given with tepid liquid manure. The best time to do this is whilst the leaves are quite green, yet the buds must be plump and the wood ripe, keeping the house rather close, shaded if necessary (for the foliage must not flag), and the Vines damped occasionally. Where the roots are poor and bare lifting must be resorted to, and this likewise should be done whilst the foliage is green.

The following is the best mode of performing the operation:—Shade the roof with mats after closing the house, and during the lifting syringe the Vines occasionally through the day. Commence removing the soil of the border at the point most distant from the stems, and remove the whole of the surface soil down to the roots, and cover with mats to keep them from the air. Now, again, start at the most distant point from the Vines, and carefully remove the soil from amongst the roots, which should be laid aside and covered. In this manner proceed to the stem of the Vines, where great care must be taken not to injure the roots. See that the drainage is perfect. Place in a foot depth of compost rather firm, which will be suitable for the lowest tier of roots, spread out the roots carefully over it, and these should be covered with about 6 inches of compost also made firm. Another tier of roots should then be introduced and covered with a layer of soil 6 inches thick. Above this there will be no roots but those of a small fibry character, and these should be spread out carefully, and have some compost worked amongst them with the hand, covering them with about 4 inches depth of compost, and as they will be shorter than the other roots the soil should not be taken out more than a foot beyond their extension, which will give the border a slight incline from the Vines. The operation completed, give a thorough supply of water at 100°, and mulch the whole of the surface with short stable manure 3 inches thick. Syringe the Vines two or three times a day, continuing the shading, and ventilate only to prevent the temperature rising above 90°. In the course of ten days or a fortnight fresh rootlets will be emitted, which will be evidenced by the foliage not flagging when air is given or the shading withdrawn, and this being the case ventilation should be resorted to gradually, and the shading withdrawn by degrees. Vines may be so treated without prejudice to their fruiting satisfactorily next season. Turfy loam, light rather than heavy, is most suitable, adding a tenth of old mortar rubbish, a twentieth of charcoal, and a fortieth of half-inch bones or calcined oyster shells, the whole thoroughly incorporated. If turfy loam be not obtainable garden soil of a light loamy nature with the ingredients above indicated to keep it open answers well, manure being best given at the surface. Laterals may be encouraged as an aid to root-action for a short time, but they should not be given too much freedom, or it will impede the ripening of the foliage and delay pruning operations.

If late Grapes are at all backward a little assistance may be given by fire heat, and will be of greater benefit than at a later period, as for the well-keeping of Grapes it is indispensable that they be early and thoroughly ripened. Any not yet commencing colouring should have a night temperature of 70°, and 75° to 80° in the day-time artificially, advancing with ventilation from 75° to 85° or 90°, or even 95° from sun heat. Ventilate houses freely which contain Vines of Lady Downe's with a night temperature of 70° to prevent scalding, from which the berries are not safe till colouring is commenced. Inside borders must not lack moisture, giving when needed a thorough soaking of tepid weak liquid manure in the early part of the day, so that superfluous air moisture will pass off before closing time. Do not allow the laterals to become crowded.

Melons.—The latest batch of plants must be placed in the Melon house. Plant on hillocks or ridges about 1 foot deep, making the soil firm, maintaining the bottom heat at from 80° to 85°, top heat 70° to 75° artificially, and 80° to 90° from sun heat. Secure to the plants a genial condition of the atmosphere by damping available surfaces two or three times a day, and close at about 3.30 P.M.; syringing the plants moderately at the same time. Attend to former instructions as regards plants swelling their crops, also in maintaining a dry condition of the atmosphere and at the roots to plants setting or ripening their fruits. In pits and frames the last batch will soon be setting their fruits, at which time be very sparing in the use of water at the roots and on the foliage, and keep the foliage fairly thin by the removal of superfluous growths. Fertilise the flowers daily when three or four female flowers are expanded on a plant, at the same time stopping the shoots one joint beyond the fruit. Syringe freely, and afford a plentiful supply of water to the roots of those with fruits swelling, earthing up those plants that have just set their fruits. Keep a sharp look-out for cracked fruits, and if any appear cut the stems about half way through about 6 inches below the fruit as a preventive in the others, keeping the soil and atmosphere dry. Upon the first appearance of canker rub quicklime into the affected parts.

Cucumbers.—To insure a free and fruitful growth pay close attention to stopping and well thinning the growths, giving regular attention to watering, shading, and ventilating. Water copiously and syringe freely between 3 and 4 P.M. Complete the preparations for the autumn fruiters, as advised in our last calendar. Plants growing in pits or frames must be regularly watered and syringed and the lights closed about 4 P.M.

PLANT HOUSES.

Stove.—Gardenias that flowered late may be cut back if too large; they should be thoroughly cleansed of scale and mealy bug, the plants bearing when cut back a much stronger application of an insecticide than when in tender growth. We use nicotine soap at the rate of 6 ozs. to the gallon of water at 120°, dipping such as are not too large, and syringing others, repeating it in half an hour, as to be effectual the work must be thoroughly done. When the solution becomes dry syringe the plants thoroughly with clear water at 140°. Stephanotis, Ixoras, Dipladenias, and similar plants liable to be attacked with scale and mealy bug, should be treated similarly after they have flowered. Young stocks of any of the above that it is desirable to increase in size should be moved into larger pots placed at the warmest end of the stove, where they can be syringed every afternoon, and encouraged to make growth.

Euphorbia jacquiniæflora being of straggling growth should have the shoots stopped, but not later than the beginning of August, after which to encourage them to make all the strong growth possible keep them near the glass, syringing every evening. All winter-flowering plants, such as Aphelandras, Poinsettias, Plumbagos, Centropogons, Eranthemums, Sericographis, and Luculias, should be exposed to all the sun and light they will bear without scorching, and be otherwise encouraged to make firm sturdy growth.

During the next two months is a good time to repot Anthuriums that have flowered early in the season. Use light open material, the best fibrous peat in lumps the size of an egg, removing the finer particles by sifting, adding an equal proportion of sphagnum and charcoal or crocks broken small, with about a sixth of sand. Remove

all the old potting material, work the soil well amongst the roots, and surface with live sphagnum. As the plants require abundant supplies of water when growing the drainage must be efficient. Stove climbers planted out should have abundant supplies of liquid manure, and the free-growing Passifloras must have their growths frequently regulated and thinned.

A first batch of Roman Hyacinths, Double Roman and Paper White Narcissus should be potted without delay for early flowering. Employ rich light soil, and plunge the pots or pans 6 inches deep—i.e., over the pots in ashes in a cold frame, in which they should remain until the pots are filled with roots and growth is being made, when they may be removed to a house with a temperature of 50°, placing them in a light position to keep them sturdy. The plants when withdrawn from the ashes should be gradually inured to light. When the spikes are showing they may be forwarded in a higher temperature.

THE BEE-KEEPER.

HEATHER ON WET LAND.

A CORRESPONDENT asks for the statement of experience on the question of Heather growing on wet land being less productive of honey than Heather growing on dry land. The question is important for beginners, for though practical and experienced bee-keepers have no doubt on the matter, young apiarians should know what others have proved satisfactorily. In my native parish bees are extensively kept by working men for profit. Heather is abundant on high-lying parts of the parish, and in adjoining parishes to the north. The ground on which the Heather grows is wet, but not marshy. Almost all the bees of the parish were removed to these home moors in my younger days. Even then bees did fairly well, and it was well known that bees placed among Heather hills did better. About thirty years ago the late Mr. Robert Read of Carlisle took some of his hives to Abington, twenty-four miles distant by the Caledonian railway, and there on the Heather his bees gathered far more honey than those of equal strength did on the Carlisle moors. For many years afterwards many hives were annually sent to Abington, to the moors near Tinto (the highest hill in the Lowlands of Scotland), and to the moors of Carwath, and in all these places the bees do better than on the moors in and near Carlisle parish. Here the practical bee-keepers found it to their advantage to remove the bees to distances ranging between twelve and twenty-four miles, though they have Heather within the easy distance of three miles, at most four miles, in their own parish. Carrington Moss in this county, three miles from Sale, is a great swamp or wet bog with Heather on it, which yields but little honey to bees. Though so near my apiary at Sale, Carrington Moss was disregarded, my bees being annually sent to the hills of Derbyshire above twenty miles distant. For bees we like the pasture of rich warm land well exposed to sunlight. Clover as well as Heather yields large crops of honey from such land.—A. PETTIGREW.

BRITISH BEE-KEEPERS' ASSOCIATION.

THE ninth great annual Exhibition of bees and their produce with hives and other bee-keeping appliances will be held at the Royal Horticultural Gardens, South Kensington, on August 3rd, 4th, 5th, 7th, and 8th. The Exhibition this year promises to be of a highly interesting character. The entries for appliances are more numerous than in any previous year, including a grand display of observatory hives stocked with bees of various races.

Various meetings will be held during the Show week. On Thursday, August 3rd, representatives from county associations will consult with the Central Committee upon topics relating to the development of county associations. A general meeting of the members will be held on Friday the 4th, under the presidency of the Baroness Burdett Coutts.

On Monday, August 7th, an examination of candidates desirous of obtaining certificates of proficiency in bee management, qualifying them to act as experts for county associations, will be held under competent examiners appointed by the Association. The rapid growth of county bee-keepers' associations throughout England has created a large demand for the services of competent experts to attend horticultural and other local shows for the purpose of giving practical demonstration of the more advanced methods of bee culture. Their services are also in much request in the visiting of apiaries and

diffusing knowledge of the art in various ways. The Central Committee have wisely determined that such experts should hold certificates, and have made arrangements for annual examinations. The prizes gained by the several competitors at the South Kensington Show will be distributed in the large conservatory by H.S.H. The Duke of Teck on Saturday, August 5th.

TRADE CATALOGUE RECEIVED.

Ant. Roozen & Son, Overveen, near Haarlem, Holland.—*Catalogue of Bulbs.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Fumigating Grapes (*Anxious*).—We advise you to proceed cautiously in fumigating a vine in which the Grapes are "ripe and ripening." A far safer and more effectual method of destroying the thrips will be to apply an insecticide with a sponge or spray-distributor.

Large Foxgloves (*Foxglove*).—We have never seen a Foxglove 13 feet high, and we consider your plant, which you say is 8 feet high by 3 feet 9 inches in diameter, and producing nearly five hundred flowers, a very satisfactory example of culture. Such well-grown plants of good varieties have a grand effect in those shrubby borders where space is afforded for their development.

Orange Fungus on Rose (*G. O. L.*).—The leaves you have sent are seriously attacked with this fungus. We know of no better remedy than sponging them with a solution of sulphate of copper prepared by dissolving 2 ozs. of blue vitriol in a little hot water, and then adding two or three gallons of cold water. If any of our readers can inform us of a better mode of destroying the fungus we will readily make it known.

The Swan River Daisy (*H. M.*).—We can scarcely plead guilty of causing you disappointment, since your question was answered on page 45 of our issue of the 13th inst.; it is the second reply on the first column of the page quoted. We are glad to learn we have been of service to you in the management of bees; it is not all apirians who have the satisfaction of recording the taking of "lots of honey this year."

Melons—Old v. New Seed (*F. C.*).—As a rule Melon plants raised from seed many years old grow less vigorously than those raised from new seed, yet after all the question of vigour is very much a question of seed and treatment. If you pursue the method that has previously given you satisfaction you will doubtless succeed again. Many more Melons are grown every year from new than from old seed, and over-luxuriance can be checked by making the soil very firm, and not having it very rich. Pure, fresh, and rather strong loam is suitable, and if the plants do not grow freely enough they can be stimulated with liquid manure.

Striking Pansy Cuttings (*Idem*).—They may be inserted now, choosing the young growths that have not produced flowers, and which are not hollow. Rather rich yet light gritty soil surfaced with sea sand will be suitable, the sand having been for some time exposed and washed by the rain or artificially. We should not use any fertiliser, as it might be injurious where there are no roots to absorb its virtues. Slugs may be kept in check by dustings of fresh lime or soot applied at night when they are moving and feeding, not in the day when they are lurking in their haunts. Insert the cuttings in a shaded position, but not under trees.

Old Primulas (*Idem*).—We have occasionally seen old Primula plants flower excellently a second season, and many times seen them fail. Everything depends on the condition of the plants and the treatment to which they are subjected. If the plants are healthy you may try them by removing all discoloured foliage and premature flowers, removing also a portion of the old soil and adding fresh, rich, and gritty compost. There is great danger in over-potting old Primulas, and possibly the pots your plants are in will be large enough, but you afford us no data for expressing a definite opinion. Other questions will be answered in a future issue.

Pananas (*C. S.*).—In your search for information you have evidently overlooked an article on page 417 of our last volume, the issue of May 25th of the present year. Several species of Musas are there referred to, and the cardinal points of culture pointed out. If you require further information, and will specify your wants and state your conveniences for growing Bauanas, we shall be glad if we can aid you in accomplishing your object.

Striped Pelargoniums (*E. M.*).—All varieties having striped flowers are of a sportive nature, and liable to revert to the normal form, especially when too generously cultivated. If the Zonal variety, New Life, is planted out in rich soil it grows strongly and often produces scarlet flowers, but if grown in a pot and partially starved the flowers generally retain their peculiarity. It is undoubtedly advisable to select growths for propagating that produce striped flowers, and the plants should not be grown in large pots nor rich soil. The same remarks apply to the other variety of which you have sent a specimen. That is all the "secret" there is about the matter that we are aware of.

Onions versus Beetroot (*Ignoramus*).—In a collection of ten sorts of vegetables shown in July we should prefer the white winter Onions, which you state measured 15 inches round and were "very handsome," to "coarse Pine Apple Beet." You will find by reference to previous issues of this Journal that the former are invariably included in the premier prize collections staged at the London shows, and the judges are generally disposed to favour Onions rather than Beet. Both, however, may well be included in a collection of ten sorts.

Mulching Rose Beds (*A. M. B.*).—In very dry seasons and districts the method you propose might with advantage be adopted, but it will scarcely be necessary to mulch the beds now, as the earth is moist, and Roses generally have made good growths, heat being now needed for their maturation. There is one contingency that should not be overlooked in mulching beds with grass from an orchard—namely, the liability of filling the ground with weeds, some of which may be very difficult to extirpate.

Exhibiting Pelargoniums (*S. J.*).—Both the classes to which you direct our attention appear clear enough. The first stipulates for twelve distinct single trusses, and more cannot be staged. In the second the term "bunches" has no doubt been inserted studiously, not accidentally, and means that several individual trusses may be grouped together to form the requisite number of bunches, and you cannot be disqualified by so exhibiting them, as you would be in exact conformity with the schedule. Size of trusses is an important property in a Zonal, but much less so in a Show and Fancy Pelargonium; hence, no doubt, the distinction that has been made, and which is not unusual.

Insects on Plum Trees—a Dilemma (*C. A. J.*).—We fear we cannot tell you what to do under the circumstances, but will give the purport of your letter in case any of our correspondents may be able to suggest a remedy. "The under sides of nearly every leaf of a standard Plum tree are thickly covered with aphides. From its position the tree cannot be syringed, nor can anything be burned under it; what can I do?" We repeat, we have no clear idea of what you can do in such a case; nor can we tell you how to banish house flies from your room, much as we desire to aid you in obtaining what you long for—"a few moments' peace."

Roses Unhealthy (*W. Waterfield*).—The leaves you have sent indicate that your plants are in a debilitated condition, the consequence of sterile soil. In such a case they are peculiarly liable to be attacked by the black fungus. We advise you to give very copious supplies of liquid manure at once, and also at a convenient time to remove the soil from over the roots, and as far as they extend, and apply a heavy dressing of rich manure. This will stimulate the production of stronger growths and larger and stouter foliage, which will probably not be attacked by the fungus. At the same time dissolve 3 ozs. of soft soap in a gallon of water, and with this syringe or sponge the plants, dusting the leaves when they are wet with flowers of sulphur. The stamens in the flowers of cultivated plants vary considerably, often exceeding the normal number, especially when they are very vigorous. Six stamens is the usual number in the *Ixolirions* and other allied plants, and the exception you have noticed was due to the cause named above.

Tomatoes (*Hortus*).—The proper mode of training Tomatoes can only be determined by circumstances. Grown outdoors we do not stop our plants until they have produced four or five trusses of flowers. The plants are then topped, all the axillary growths pinched out, and all subsequent growths pinched as fast as they appear. The whole strength of the plant is then directed to the support of the fruit and the principal foliage, and some of this also is removed to prevent the fruit being too much shaded. The same system may be adopted under glass, but training another growth that issues after topping as a leader if the space to be occupied is not covered. See also the plan recommended on page 64 of our last week's issue. You would find Mr. Iggulden's manual on the Tomato useful; it can be had from this office post free for 1s. 1d.

Planting Bulbs in Turf (*Narcissus*).—All the free-growing Narcissuses will grow well in your churchyard if the soil is moderately fertile, together with the other bulbs you name. Any time from now to the end of September is a good time for planting; but it is not sufficient to make holes with the dibber and drop the bulbs in them, as the surroundings are then often so hard that the roots cannot readily take possession of the soil. The proper plan is to take up a square of turf with the spade and dig up the soil to the depth of a foot, and place the bulbs so that when the turf is replaced they are 3 inches below the surface. Thus treated they root freely into the loosened soil. When the turves are placed on again they will be slightly above the general level, but will not remain so for long. If you object to this a little of the soil can be spread on the grass, which it will benefit. Snowflakes and Snowdrops may be planted 2 inches deep.

Vegetable Marrows not Thriving (*Sherbrook*).—The recent very cold nights have seriously checked the growth of Vegetable Marrows, especially where they have no artificial heat to the roots by fermenting materials. In all probability your plants are suffering also by the want of support. We should give them warm liquid manure, soot water being good for them, and not permit them in their present weak state to mature their fruit. If you cut the fruits when they are 4 or 5 inches long they may be 18 inches apart, but if you suffer them to grow large you must not allow them to be half so numerous. There is nothing unusual in Lilies of the Valley producing seeds, but if these are allowed to mature they exhaust the plants and prevent the formation of strong crowns for producing future flowers.

Grubs on Primulas (*F. Ashbourne Hall*).—These are the larvæ of one of the Weevils (*Otiobrychus sulcatus*), insects very injurious in gardens both as larvæ and beetles. Usually they enter the pupal stage before this time, appearing as beetles in August. These attack the Vine and various fruit trees, particularly at night, afterwards resorting to succulent plants to deposit their eggs just below the surface of the earth. They may be searched for with a lantern, and to keep them off plants in pots it has been recommended to water with a clear solution of lime or with soot water. We have recently heard that a very diluted solution of carbolic acid, a few drops only in a quart of water, proves particularly distasteful to them. If eggs are deposited, the larvæ hatch in September, hibernate, and feed up in the spring and summer, when they do the most damage.

Pruning Espalier Fruit Trees (*F. R.*).—The best method to pursue can only be properly determined by the condition of each tree. Assuming your trees are established and in a bearing state, at the same time healthy, we may say generally that the plan followed by your gardener appears to be right in principle, and that suggested by yourself in a certain sense right too. If, instead of the shoots not wanted being cut out entirely now, they had been prevented forming by disbudding in April, those selected to remain would have had a better chance of assuming a fruitful habit. Still, it would not be wise to do as you suggest—namely, permit these to grow unrestrictedly. They should be shortened in June or July to within four or five leaves of the base, the axil-

lary growths following being pinched as fast as they appear. The principal leaves at the base of the shoots are then exposed to the full action of the sun and air, and the formation of fruit buds on the spurs below or amongst them usually follows. Shoots required for extension or for occupying vacant space, as replacing branches that are not satisfactory, must not of course be shortened, but all the others should be; and as a rule this shortening is too long deferred, especially when the trees are disposed to grow vigorously, as an extension of luxuriant shoots incites root-action, and if this is too powerful fruit spurs are not readily formed.

Insects on Azaleas (C. D.).—Your plants appear to be infested with thrips. These insects have a great partiality for Azaleas, and seriously injure the plants. Dissolve 2 ozs. of soft soap in a gallon of water, and pour half a gallon of boiling water on an ounce of strong tobacco. Mix the two solutions thoroughly, and then syringe the plants heavily. The best mode of doing this is to lay the plants on their sides on a mat or other clean surface, and by turning them round the insecticide can be directed to the under sides of every leaf, while at the same time the soil is not saturated. This should be repeated at intervals of ten days throughout this and the ensuing month, and the plants will be cleansed. Dipping small plants is even more effectual than syringing. It is not necessary to place Azaleas in the open air, provided they are properly attended to in a suitable house. It is, however, better to place them outside for a few weeks than to keep them heavily shaded under Vines. When placed in the open air it is important to shade the pots from the sun, as the roots will be injured, and means must be adopted to prevent worms entering the pots.

Show Pelargoniums after Flowering (H. C.).—As they have been outdoors some time, cut down each shoot at two or at most three eyes of the base of the last season's growth; and when they have broken and have shoots barely an inch long turn them out of the pots and remove all the old soil, trimming in the roots, and repot in a size less pot than those they were flowered in, and place them in a cold pit or frame, keeping rather close until fresh roots are formed, then admit air abundantly, protecting from heavy rains. At the close of September or early in October remove them to shelves or stages in a light airy position. In November they may be stopped, and in December have them in their blooming pots. Three parts turfy loam, one part old cow dung, one part leaf soil, and half a part of silver sand, forms a good compost. Zonals which have done flowering may be treated in the same way.

Names of Plants (W. G.).—Every effort has been made to obtain the name of your plant, but without avail, and all that can be determined is that it is an Anthericum. Had it been packed so as to have arrived here with fresh flowers its specific name could doubtless have been ascertained. (W. W. Myers).—5, Festuca ovina, Sheep Fescue Grass; 19, Bromus Asper, Rough Brome Grass; 20, Bromus sterilis, Barren Brome Grass; 21, Millium effusum, Wood Millet (birds are fond of this Grass); 23, Brachypodium sylvaticum, Wood Brome Grass; 26, Poa trivialis, Rough Meadow Grass. (M. McK.).—The specimens were much withered, but the following were recognisable—5, Rhus typhina; 7, Ornithogalum exscapum. (G. S.).—1, Agrostis vulgaris; 2, Epilobium hirsutum; 3, Ononis reclinata; 5, Hieracium aurantiacum; 6, Vicia gracilis. (F. A.).—1, Insufficient; 2, Pteris cretica albo-lineata; 3, Pteris serrulata cristata; 4, Nephrodium setigerum; 5, Blechnum occidentale; 6, A variety of Pteris tremula. (W. T.).—See our remarks on the subject of naming Roses, which are a repetition of what we have many times stated in previous issues. (Irish Correspondent).—We have not received your Roses, nor do we undertake to name varieties of Roses or other florists' flowers, but only species of plants. (R. A. P.).—Omphalodes luteifolia.

Standard Frame (T. E. L.).—At a meeting of the Special Committee of the British Bee-Keepers' Association which had been appointed to consider the subject, held on March 16th of the present year, it was unanimously resolved that the outside dimensions of the standard frame should be 14 inches long, 8½ inches deep; the top bar to be three-eighths of an inch thick, bottom bar one-eighth of an inch thick; side bars a quarter of an inch thick. These dimensions do not refer to anything outside of the rectangle. It was also resolved that standard frames duly stamped should be provided at 1s. each. It is better and more economical to feed bees with syrup than with dry sugar. Please address your letters correctly; it was only by chance that yours reached us after having been refused in the Strand.

COVENT GARDEN MARKET.—JULY 26TH.

OUR market has been light this week, and with buyers for soft fruit off prices have been lower.

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	0	0 to 0	Grapes	lb.	1 6 to 4 0	
Apricots.....	box	1	6 2 0	Lemons	case	20 0 30 0	
Ditto	"	1	0 2 0	Melons	each	2 0 4 0	
Cherries.....	½ sieve	6	0 12 0	Nectarines....	dozen	4 0 12 0	
Chestnuts.....	bushel	0	0 0 0	Oranges	100	4 0 6 0	
Currants, Black..	½ sieve	4	0 4 6	Peaches	dozen	4 0 12 0	
" Red....	½ sieve	2	6 3 6	Pears, kitchen ..	dozen	0 0 0 0	
Figs.....	dozen	4	0 0 0	" dessert	dozen	0 0 0 0	
Filberts	lb.	0	0 0 0	Pine Apples, English	lb.	3 0 4 0	
Cobs.....	100 lb.	0	0 0 0	Raspberries	lb.	0 3 0 6	
Gooseberries	½ sieve	2	6 0 0	Strawberries	lb.	0 6 1 0	

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4 0	Lettuces	score	1	0 to 1 6
Asparagins.....	bundle	0	0 0 0	Mushrooms	punnet	1	0 1 6
Beans, Kidney....	100	1	0 0 0	Mustard & Cress ..	punnet	0	2 0 3
Beet, Red.....	dozen	1	0 2 0	Onions	beh.	0	6 0 0
Broccoli.....	bundle	0	9 1 6	Parsley.....	doz. bunches	3	0 4 0
Brussels Sprouts..	½ sieve	0	0 0 0	Parsnips	dozen	1	0 2 0
Cabbage	dozen	0	6 1 0	Peas	quart	0	10 6 0
Capsicums.....	100	1	6 2 0	Potatoes	cwt.	6	0 7 0
Carrots	bunch	0	4 0 6	"	Kidney.....	cwt.	6 0 8 0
Canliflowers.....	dozen	2	0 3 0	Radishes....	doz. bunches	1	0 0 6
Celery	bundle	1	6 2 0	Rhubarb.....	bundle	0	4 0 6
Coleworts.....	doz. bunches	2	0 4 0	Salsafy.....	bundle	1	0 0 0
Cucumbers.....	each	0	4 0 6	Scorzoneria	bundle	1	6 0 0
Endive.....	dozen	1	0 2 0	Seakale	basket	0	0 0 0
Fennel	bunch	0	3 0 0	Shallots	lb.	0	3 0 0
Garlic	lb.	0	6 0 0	Spinach	bushel	3	0 0 6
Herbs	bunch	0	2 0 0	Tomatoes	lb.	0	6 0 8
Leeks.....	bunch	0	3 0 4	Turnips, new.....	bunch	0	6 0 0



POULTRY AND PIGEON CHRONICLE.

MAXIMUM PRODUCE OF FARM CROPS.

(Continued from page 69.)

In the essay previously alluded to Mr. J. C. Morton says:—"No list of Agricultural Maxima is complete which omits the experience of the Rev. S. Smith of Lois Weedon, Northamptonshire. His land in one field is a clay loam, and in another a clayed gravelly soil. It has borne successive Wheat crops, in the one case for thirteen years, and in the other for eight years. The crop in the former case has averaged upwards of 35 bushels per acre, and has gradually increased, so that latterly it has been more nearly 5 quarters." What especially distinguishes this from ordinary agricultural experience is, that these crops are obtained without the addition of manure. The Lois Weedon mode of growing Wheat consists simply in the deep and thorough cultivation of wide fallowed intervals between adjacent triplet rows a foot apart from one another. These wide intervals, a yard in breadth, are at once the feeding ground of this year's crop and the seed bed of the next. This cultivation as conducted by Mr. Smith costs £7 3s. 9d. per acre, including rent and taxes (£2 4s. 3d.), and it results in obtaining from what is really half the land a crop which would generally be considered a good one though taken from the whole of it, and this it yields annually and constantly. At the time this experimental practice was carried out previous to 1859 it attracted some attention, but principally on account of no manure being used, trusting to cultivation to bring into operation the elements of production contained in the soil. As, however, we have no analysis of this soil we must suppose that it was rich in potash chiefly, such as we have known to exist in land in a certain district as having produced full crops of every kind under ordinary cultivation without manure for upwards of fifty years. The Lois Weedon system has since been overshadowed by the system of continuous cropping and corn-growing introduced to notice by Sir J. B. Lawes' experiments, and put into practice with more or less success by Messrs. Prout and Middleditch, a full account of whose practice, with our own comments thereon, was given in this Journal under the heading of "Continuous Corn-Growing and Clay Farming" from the 22nd of September to the 13th of October, 1881.

We wish now to call attention to another mode which has had a powerful influence towards producing maximum crops where tillage and manure has been applied with judgment and experience. We allude to the effects of selection called "pedigree in cereals," and as this matter was introduced first by Major Hallett about twenty years ago there is no doubt but his efforts have been attended with success, and that the agriculturists of this country have now a much better class of cereals for seed purposes in consequence. We shall only shortly allude here to Major Hallett's mode of selection, but for further information refer the home farmer to an article in this Journal upon the subject entitled "Pedigree in Cereals," dated June 24th, 1880. The question involves three points. First, that no two grains of any cereal will produce plants precisely equal, and that, therefore, in any given quantity of any cereal, whether a dozen grains, a pint, or a quarter, there is one grain superior in producing power to any of the others; second, that this superiority is inheritable; third, that it may, by repeated selection year after year of the best descendant grain, be greatly increased, and become practically a fixed characteristic

of the plant. "To support this theory we grow a crop of Wheat, say of 40 bushels per acre. We wish for more. How is more to be obtained? Can we grow more ears in number? and if so, by what method? Can we sow more seed per acre? No; for if we do we shall obtain green fodder only, not corn. If we drill 1 bushel of seed, or broadcast 2 bushels, per acre we can only obtain about one million of ears per acre. The only means of increase then is by increasing the size of the ear and its contents, and this I have effected by my system of selection." These observations of Major Hallett's clearly show that the character of the grain will influence the maximum produce under any system of cropping, of soil, or manuring.

We will now refer to maximum crops of Oats. We have obtained a statement through a medium which may be relied upon as truthful. It is, however, desired by the grower that his name should not be mentioned, although the information is freely given. A field on chalk soil in a well-cultivated district near to Andover, a town in North Hants, was sown, after a crop of roots fed off by sheep, with black French Oats in the spring of 1869, and the produce realised was 16 quarters per acre over the whole field. Although these French Oats are generally rather light weighers, and probably not weighing over 34 lbs. per bushel, still this must be considered a crop of sufficient value to be recorded by us. We, however, pass on to furnish a record of a large crop of Oats, and which our informant had an opportunity of viewing before they were cut whilst almost ready for harvest. This occurred in the year 1828 on a farm called Hook Grange, occupied by Mr. J. Wilkinson, in the parish of Titchfield in South Hants, and near the seashore. The land, which was sown with white Tartarian Oats after Swedish Turnips fed off by sheep, was about 7 acres, the soil being a deep hazel loam upon gravel. The produce was $17\frac{1}{2}$ quarters per acre, with an enormous crop of straw, which it would be difficult to exceed in quantity. The drawback to this crop was in consequence of the light weight of the grain, which did not exceed 33 lbs. per bushel, owing to this sort of Oat growing with very much awn or beard at that time. They have, however, been much improved latterly by selection, but the straw for feeding value is excelled by none.

A remarkable valuable crop of what is called drege, being a mixture of winter Oats and winter Vetches grown together, next deserves notice. This occurred in a good agricultural district in Wiltshire. We are, however, not authorised to give the grower's name, although we rely upon it as truthful that the produce per acre reached the large quantity of thirty-two sacks per acre, the grain and pulse being of heavy weight, and the produce being of about equal quantities both of Oats and Vetches.

We now proceed to record crops of Barley. We first must name a full crop of American Barley grown in a good district in North Hants, being on the chalk formation, and although the grower is a most enterprising agriculturist, we are not at liberty to furnish his name in connection with this statement, but it can be confidently relied on as being correct. This crop was grown after Turnips fed off in the year 1874; the produce, 9 quarters and 2 bushels per acre, of high quality and heavy weight. This crop has, however, been exceeded by a home farmer who is an excellent manager, Mr. Burnett, on the estate of the Misses Taunton at Ashley, near Stockbridge, Hants. The land is on the chalk formation, and on a field of 3 acres. In the year 1860, after feeding off a crop of roots, the land was sown with what Mr. Burnett calls the Giant Barley, which we suppose is neither more or less than the long-eared American variety. The crop obtained, however, was extraordinary, being sixty-one sacks, the produce off 3 acres of land, and the grain of good malting quality, and it is the more remarkable in consequence of the land being on a hill farm of thin chalk soil. We must not, however, omit to notice the record of crops of Barley alluded to by Mr. Wm. Cubitt of North Waltham in Norfolk, who states in the Journal of the Royal Agricultural Society in his letter to Mr. J. C. Morton, that in the year 1844 the quantity grown on farms in that district varied from $7\frac{1}{2}$ to 9 quarters per acre. We have various cases which may be recorded of the growth of 8 quarters of Barley per acre of fine quality in years long gone by, but we do not deem it worth stating here, as they have been entirely eclipsed by several well-authenticated records as above stated.

The next cereal crop to be named is Rye. The value of straw of this cereal is increasing year by year, and is higher in price than that of any other crop. We have one record to make of a very large crop of Rye, and that was grown on a chalk soil in a well-farmed district of Wiltshire; it was thirty sacks per acre, and the statement may be fully relied on.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Preparation will now be needed for late sowing of Turnip seed after green crops or early cereal crops such as Rye, Winter Oats, White Canadian, and other early sorts of Oats; and when the heavy rain storms which have prevailed of late occur the horses may be employed in cross-ploughing the fallows on strong land in preparation for Wheat-seeding; also where it is intended to lay out farmyard or town dung for Wheat, the sooner it is done the better. It is, however, bad policy to draw bulky manures to distant fields, for it is now so well understood that artificial or portable manures are equally adapted for Wheat crops as ordinary yard dung, and it is only to refer to these columns in past seasons to ascertain the sorts and quantity of manures which we have so often advocated in years gone by as well adapted for the sort of Wheat and the nature of the soil. At every dry interval horse-hoeing and hand-hoeing amongst the various root crops should be continued; but we notice daily instances in different parts of the country that this work has been sadly neglected, and where it has been done in time it does not destroy the weeds, the weather continuing very showery. It will be recollected that last week we referred to women picking-up weeds after the hoers as having been a successful practice by one farmer in 1860 and other wet seasons. It is, however, now very difficult to obtain female field labour; still some substitute may be found by men's labour, that as fast as the weeds are cut up with the hoe they may be collected with the light iron garden rakes in small heaps between the lines of roots, and then removed at leisure to larger heaps at certain distances with the light five-grained iron forks. Some may think that this would not pay for doing, but it is just a question of the loss of crop or saving it, for continual hoeing will not kill the weeds, although done at greater cost than collecting them. The only difficulty we foresee is in those outlying districts where a sufficiency of hand labour either by women, lads, or men could not be obtained.

Harvest has commenced in many of the early districts by cutting early Peas, winter Oats, Rye, &c., and this should call the attention of the home farmer to the reality of his position, and therefore anticipate the arrival of the general harvest of cereal crops, and so be prepared for the work of using the mower, also the reaping and binding machine, in the various kinds of works for which each are best adapted; and likewise to make full provision for all eventualities in connection with harvest work, but especially the hiring of those excellent implements which he may not possess. We must also remind him that the harvest month and following few weeks is the best period for cleansing foul land in ordinary seasons, and that the ordinary work on the farm usually done by horses cannot be made available to do sufficient work where there is much cleansing of stubbles to be done, and that steam power alone can be depended upon to do the needful work, but he supplemented by the work of horses in finishing off; and that whatever the expense and cost may be, it will not only prove the best policy but the cheapest, because it is done at the right time and without any delay or hindrance to other valuable farm labour peculiar to the autumn period of the year, such as seeding of Trifolium, Vetches, winter Oats, and Rye.

Hand Labour.—This is the busy period of the home farmer's year, and all possible diligence and forethought will be required of him, as just on the verge of harvest numerous requirements crowd upon his mind, all of which must be considered in relation to each other, and also that which may be the most important and requiring his first attention. There is yet some hay ungathered in most districts, for in the early districts of gravel, sand, or chalk soil the first growth of Clovers may have been stacked and the meadows and parklands also; yet the second growth of Clovers and other Grasses will in a few days be ready for cutting if more hay is required, and unless it is upon some stock and breeding farms for sheep the Clovers should be cut for hay the second time, or otherwise for seed, as these furnish items of sale so much required when corn is low in price; besides which the Clover roots will furnish a much better preparation for the Wheat crop than when they have been fed close by sheep. The sowing of Turnip seed after the early Peas or Rye, &c., has been cut should all be done before the crops are harvested, as there will not be time when stacking the crops has commenced. Our plan is therefore to sow the seeds every day as fast as the crop is cut between the stooks or pooks, after which these can be removed on to the seeded land, and the seeding be finished entirely before the crop is carted to the stack. Where the harvest is late in some of the western, north-western, and north midland districts there will still be some work of haying in hand, and this fact leads up to the question of making the hay upon the new system, and to which we have previously given some instructions as to the working of it in this Journal of the 22nd of June last. The generality of farmers have had no chance of having satisfactory proofs of its success, for the meeting of Royal Agricultural Society at Reading where the trials of the exhausting-of-heat system were to have been carried out, and was looked forward to by many, expecting the matter would be decided upon the occasion as to the value of the system by the exhibition of practical illustrations of the work in all its detail. This may be done in about two months' time, when the ricks connected with the trials may be cut and the question of the condition of the hay be decided; for although the heat may have been exhausted out of the ricks the condition in which they were put together will have its influence, for the weather was wet and unsettled during the early

period of the trials at Reading and interfered very much with the trials as contemplated. Let these trials turn out as they may, we are not to be discouraged in this matter, and we advise the home farmer to make his own trials upon corn ricks, as well as hay ricks, under the best directions which are given by the makers of the fans for exhausting heat and water from the stacks. In making some observations upon the subject we advise that hay should be what is called half made before stacking, in order when the heating takes place that the atmospheric air may pass into and through the rick and dry it as fast as the heat is withdrawn by the fan; for at half made the hay may be put together, although it may have received a shower and is not quite dry; but if the grass is green it will settle so closely that although the heat may be drawn out the air cannot follow to dry or cool the hay.

POULTRY AND PIGEONS

PROFITABLE POULTRY IN CONFINEMENT.

ENCOURAGED by "RETIRED OLD FARMER'S" remarks on the above subject in the Journal of a few months ago, I decided to try what I could do in the same way myself. I have now pleasure in giving my experience, and hope it may be of use to some of your readers.

Having a small lean-to shed which could be spared I soon had it converted into a good roosting place, in connection with which I manufactured a run, 8 yards long by 2 yards wide, with some rough slabs of timber and galvanised wire which I had by me. On the 18th of March last I bought twelve hens and a cock, two of the hens being pure Grey Dorkings, the others mixed common barndoor fowls, for which I paid £1 10s. 10½d. From the 18th of March to July 15th they have laid 612 eggs. Most of them were sold in the local market (those used at home were priced the same), and realised £2 1s. 8d., being at the rate of 10d. per dozen as nearly as possible. I also sold a broody hen for 3s., set two, and have now twenty chickens, which I value at about 14s. Sold a couple of the oldest fowl for killing for 4s. 9d., being the price I gave for them at first. The result is that I find I have made a profit in the four months of 18s. 1½d., besides having the ten remaining fowls for nothing. The account stands as follows:

RETURNS FROM FOWLS.			
	£	s.	d.
612 eggs	2	1	8
Broody hen sold	0	3	0
20 chickens	0	14	0
One couple sold	0	4	9
	£3	3	5
COST OF FOWLS AND KEEP OF DITTO.			
	£	s.	d.
13 fowls	1	10	10½
Light corn and maize, &c.	0	14	5
	£2	5	3½
		2	5 3½
		£0	18 1½

I may say that I had no previous experience whatever in the management of fowls, but followed the advice given in your paper as regards feeding, cleanliness, &c. Having removed my abode the fowls have had their liberty and the run of a grass field during the past month, with the result that they lay larger eggs, and that it does not cost half as much to keep them.

I find that the Dorking does not stand confinement well. The sort that did the best are here called Cuckoo, and Cuckoo and Brahma crossed.—T. O.

POULTRY AND PIGEON NOTES.

THE season which opened so prosperously for the poultry yard has sadly changed for the worse. The warmth of the winter and early spring was most favourable to the fertility of eggs and to incubation. We began with splendid broods, but, as we subsequently stated, as the season advanced it seemed as if the parent birds were exhausted. From all directions we received bad reports of hatching both of Ducks and chickens, though we must say that we had little to complain of in our own yards. During the last few weeks, however, dismal accounts of mysterious maladies and high mortality are almost universal from our fancier correspondents. Even the most hardy kinds of fowls seem to have suffered severely, and we have heard of many deaths in the yard of a great Game-breeder, whose chickens lead the most natural and hardy lives. It seems as if the air was at times pervaded with influences hostile to feathered life, as epidemics sometimes prevail among the human race. Unfortunately we are quite unable to prescribe any specific for the pre-

sent want of condition in chickens, for in our own broods illness has appeared in many forms—coughs, colds, rheumatism, and diarrhoea. The latter malady has been very destructive, doubtless from the excessive growth of rank vegetation. We have fed our younger broods almost entirely on rice, both boiled and raw, and since this régime was started the chickens have picked up wonderfully. The half-grown birds have suffered from a kind of influenza in whole flocks; not violent cold or roup, but a constant coughing and thickness in the throat. Of course, it is impossible to administer medicine to each bird individually where the stock is large, so they must be treated collectively. The tonic mixture which we have often prescribed should be given in the water, and Walton's tonic paste dissolved in hot water and mixed with the soft food is a gentle and excellent stimulant. As long as fowls are well and thriving we dislike all stimulants, but this is just the time for them, and their judicious use may change a limp and dejected lot of young birds into bright and vigorous specimens. When froth collects in the throat we have found perchloride of iron (single strength) very useful. We paint the throat lightly with it with a camel's-hair pencil, and the growth of any canker is at once checked, otherwise a frequent sequel to a cold becomes chronic.

WITH us the course of the Pigeon season has been the converse of that of the poultry. It opened badly; the hens seemed exhausted with the warm winter and in many cases constant laying during the months of their separation; they laid irregularly, and the young ones hatched were weakly and poor. Since the wet weather began our own birds have improved marvellously and are breeding rapidly, while hardly a squab has flagged or died. We have always found hot seasons unfavourable to a large increase of our Pigeons; they dislike thundery and airless weather, which seems to predispose them to many complaints. The rains we have had have doubtless cleared the atmosphere, which invigorates the birds. It must not be forgotten that high-class Pigeons likely to be required in autumn for the show pen must be parted early in August. We have often let our own continue to breed into the autumn and have always regretted it. The feeding of successive pairs much exhausts the parents, especially the cocks, and the later young ones generally succumb to a cold autumn. Those who have a stock of feeders must look out for a pair nesting at the same time as each valuable pair of breeders to transfer the last pair of eggs to them. These are then saved, the parent cocks can be left with any squeakers they are still feeding for a few days, and the hens at once put into the separate loft or apiary they are to occupy for the winter. All nests and all boxes suitable to nesting should be removed, otherwise encouragement is given to the hens to keep on laying. By this time the sexes of early-hatched young Pigeons can generally be distinguished. They should be separated from the general flock and put respectively with the old cocks and hens.

SOME extra classes and cups have been added to the schedule of the Hertfordshire Show. Entries are to be kept open till Saturday, 29th inst.—C.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1882.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
July.										
Sun. 16	29.621	64.5	56.4	S.W.	59.8	72.5	53.8	121.2	52.1	—
Mon. 17	29.857	63.7	57.4	S.W.	60.3	72.0	54.8	128.8	50.7	0.274
Tues. 18	29.905	62.1	56.6	W.	60.7	71.4	56.9	127.3	54.8	0.059
Wed. 19	30.074	65.3	57.3	S.W.	60.8	72.7	53.7	125.5	50.8	—
Thurs. 20	30.199	61.6	55.6	W.	60.7	73.3	50.6	128.4	47.8	—
Friday 21	30.049	62.9	56.7	S.W.	60.8	72.6	50.3	128.3	45.5	0.012
Satur. 22	29.858	60.3	57.9	S.W.	61.6	68.4	58.3	92.6	55.3	0.048
	29.938	62.9	56.8		60.7	71.8	54.1	121.7	51.0	0.393

REMARKS.

16th.—Fine, bright, and warm.
17th.—Fine and breezy till 6 P.M., then rain.
18th.—Fine, bright, and breezy.
19th.—Fine, warm, windy.
20th.—Very fine throughout.
21st.—Fine and bright; much wind, overcast afterwards.
22nd.—Fine but overcast, with showers.

The temperature continues very near the average, but more equable than usual, the nights being warmer and the days cooler than is generally the case, and owing to the amount of wind and to showers high maximum temperatures are altogether absent.—G. J. SYMONS.



3rd	TH	British Bee-keepers' Association's Show at S. Kensington (five days).
4th	F	Messrs. J. Carter & Co.'s Special Prizes for Tomatoes.
5th	S	Liverpool and Southampton Shows (two days).
6th	SUN	Alexandra 9TH SUNDAY AFTER TRINITY. [Palace Gooseberry Show.
7th	M	Manchester Gooseberry and Table-decoration Show.
8th	TU	Royal Horticultural Society, Fruit and Floral Committees at
9th	W	[11 A.M.]

WHY, WHEN, AND HOW WE MANURE OUR VINES.

THE CAPACITY OF SOILS FOR SALTS AND GASES.

IN order to be fairly understood upon this important subject it will be necessary to go into details, but at the same time I hope to be at once clear and concise enough to enable your readers to follow me without effort and without weariness. To begin with, something must be said on the capacity of soils for salts and gases, for different soils need different treatment in order to secure approximate results with a minimum of expense and of loss. All soils are not equal either in their natural fertility or in their capacity for retaining plant food. Some soils, sands for instance, instead of retaining the salts and gases supplied in the form of manures, and instead of only parting with them to cultivated crops, part with them to the rains when these come in sufficient quantities to pass in bulk through the soil. Others, again, although they are admirably fitted to retain salts and gases, are so very close and adhesive that they are not suited for arable culture, and peculiarly unsuited to the cultivation of fruit trees, and especially the Vine. Both kinds of soils are therefore avoided as far as possible, or the one is corrected by being duly mixed with the other. This, in many cases, might be done with great advantage, and might, in some instances, be even preferable to carting medium loam from a long distance, as when one description of soil is at hand only a half, more or less, of the opposite description will be needed. At all events it is necessary, or at the very least wise, to have a certain proportion of clay in every cultivated soil, and much more especially in a Vine border, for according to the proportion of clay in the soil will be the capacity for retaining manures, whether applied as liquid manure to pass through, or as top-dressings to be washed in. At the same time it is also necessary that enough opening material be either naturally in the soil or artificially mixed with it, for unless this is the case water will not readily pass away, and so will become stagnant and destructive. Neither will the roots ramify freely, and unless the soil be gritty enough and firm enough to cause the roots to multiply and break up into numberless fibres the results will not be first-class.

The above remarks are only general, but sufficient to convey my meaning. In the case of Vine borders I put more value upon having the soil mechanically right than chemically so, always providing, of course, that it contains nothing deleterious. As regards Vines we trust much more to what food is furnished artificially than to what the soil will yield of itself, for that in the richest natural soil would not produce results to satisfy any of us. With orchards it is somewhat different, for we expect

orchard trees to find much, if not most, of their food in the soil, and this they do on favourable orchard soils.

As we think it necessary to furnish most, if not all, the food needed by Vines artificially without altering the mechanical nature of the soil, we first of all inquire what food (and in what proportions) a Vine needs, and in what form it may be best applied. The first thing we turn to is the composition of what the Vine takes out of the soil to manufacture stems, shoots, and fruits. To those who have not tables of analysis ready to turn to it may not be out of place to say here that

THE ASH OF VINE WOOD IS COMPOSED OF

		1st var.	2nd var.
Potash	...	34.13	to 37.48
Soda	...	7.59	1.33
Magnesia	...	6.55	1.05
Lime	...	30.23	43.88
Phosphoric acid	...	16.35	9.20
Sulphuric acid	...	2.66	3.61
Silica	...	1.45	0.72
Peroxide of iron	...	0.16	1.08
Chloride of sodium	...	0.83	1.61
Total	...	100.00	99.96

These tables approximate to all others that I have seen, although some show slight differences; still the above are sufficient as a guide. The wood, it ought to be remembered, consists chiefly of water, and even after the water is by evaporation driven off, what remains is chiefly organic substances, which, when burned, leaves a small percentage of ash. This ash is all that is taken out of the border, if we except a little ammonia or nitric acid, which is very easily returned, and is generally, in fact, applied in very much greater quantity than is necessary. This needs to be borne in mind. Of course there is the annual crop of fruit (as well as shoots) which is annually taken from the Vines; but if green Vine wood consists chiefly of water, what shall we say of Grapes, and especially of those not very well cultivated? The truth is the total amount taken out of the border by the annual crops is very small. Nevertheless, it is none the worse to know exactly what is taken out, so we, as in the case of the wood, may just as well state here that

THE ASH OF GRAPES CONTAINS OF

	Must.	Skins.	Stones.	Juice.
Potash	62.74	46.89	29.45	46.89
Soda	2.66	1.62	—	1.62
Lime	5.11	21.73	35.57	21.73
Magnesia	3.95	4.45	8.51	4.45
Phosphoric acid	17.04	15.66	21.05	15.66
Sulphuric acid	4.89	3.88	2.61	3.88
Oxide of Manganese	0.30	0.51	0.45	0.51
Iron	0.40	1.97	0.65	1.97
Chlorine	0.70	0.71	0.35	0.71
Silica	2.18	2.71	1.27	2.57
	99.97	93.24	99.91	99.99

We have collected a great number of analytical tables, but the above are the only ones to hand which give the analysis of the mineral matters found in Grapes; and although it might have been better to have given one table only, showing the exact percentage of each component of the whole fruit taken together, still some advantage may follow from having them separate, for possibly such facts as the one that Grape stones have a greater percentage of phosphoric acid than not only any other part of the fruit but of the Vine, may throw some light on the conditions necessary to secure a free set or to do away with stones altogether. One fact stands out above all

others, and that is that foremost among the substances required by Vines, whether to supply the wants of the fruit or of the Vines, is potash, and next to potash lime, then phosphoric acid.

MANURES.

Having found what Vines require as food from the soil, and what kind of soil at once promotes the formation of proper roots and retains best the salts and gases of the manures we apply, we will next inquire what is usually applied as manures.

Lime.—We notice lime first because it is most easily disposed of. Lime is universally applied to soils, and Vine borders generally have their full share—at least when these are first made. Nevertheless, it is quite probable, and even tolerably certain, that not enough is given afterwards. Repeated and effectual waterings of the borders tend to carry the lime in the borders out of the soil and into the drains, and so in time the soil, even soils naturally limy, becomes deficient in this essential plant food. Lime, again, is particularly valuable in keeping soil sweet, or even in purifying it when sourness already exists, and there need be no fear of excessive liming, for even when present in large quantities, comparatively speaking, it will not hurt Vines, but the reverse. Bearing this fact in mind I give lime to the soil when making up the borders, and occasionally afterwards in winter time sprinkle a dusting over the borders inside and out to keep the soil sweet, and that the Vines may not lack lime in their food.

Phosphoric Acid.—After lime we place phosphoric acid, not because that Vines require it in greater quantity than anything else, or in even so great an abundance, but because the majority treat their Vines as if they did.

After lime bones are generally applied in rather large quantities for the reason often given, that bones are a lasting manure, and the fact of their being lasting leads not a few to make bones the only manurial substance applied when the borders are made—a practice we are very far from condemning, although their application may altogether be dispensed with without the border being thereby any less fit to produce full crops of Grapes. Whether bones should be applied either when the borders are made, or afterwards as top-dressings of bonemeal annually, as some do, or not at all, wholly depends on the means to be afterwards adopted to keep a proper supply of phosphoric acid within reach of the roots. As we are going into details somewhat it may be as well, for the sake of your younger readers, to say that bones in a fresh state are made up of phosphate of lime or bone earth and organic matter, which is rich in nitrogen, and which when decaying in the soil form ammonia, to the action of which the first effect of bonemeal, when applied to grass land or vegetable crops, is due. The bone earth (it differs in different animals) contains about 40 per cent. of phosphoric acid, generally 55 per cent. of lime with traces of magnesia.

After Vine borders are made up and the Vines growing and bearing they are generally "helped" with top-dressings, but more especially with liquid manure. It may be fairly stated that 90 per cent. use guano alone in making liquid manure, while not a few use sheep and deer droppings. These waters applied to plants that are growing in exhausted soil, but otherwise healthy, produce an instantaneous and wonderful increase of vigour, which has led many to use such when better material was running to waste at their hand. The value of such liquid manures depends very largely, their immediate effect almost wholly, on the nitrogen they contain, and after the nitrogen as it exists in ammonia or nitrates to phosphoric acid, although potash is also present. Still guanos (they differ largely), generally speaking, owe their value chiefly to the bone-earth and nitrogen they contain, so that the use of bones and guanos chiefly, or even largely, does not meet the demand of the Vines for potash. It is true very fine Grapes have been grown by the use of these alone, but not economically, for when potash is supplied in sufficient quantities by the use of guano there must be a very great waste of valuable and costly phosphates and nitrogen.

With the idea of furnishing potash to the Vines wood ashes have been very much recommended of late years, and will no doubt be largely used by many. Potash as it exists in wood ashes is easily soluble, and even in good holding loam dis-

appears rather quickly when only supplied in this form when the borders are made. Used in moderation as top-dressing either annually or biennially they are more likely to do good; but I would here remark that not only is potash thus applied liable to disappear quickly, but it is a popular fallacy to suppose that wood ashes—unless, indeed, it be Vine wood—are particularly rich in potash. Doubtless a few woods leave ashes rich in potash, but a very much greater number furnish lime chiefly. When we have to apply 100 lbs. of ashes in order to furnish 5 lbs., 10 lbs., or even 15 lbs. of potash, there is, I apprehend, no small danger of overloading the soil with matters not wanted. At the same time, while uttering this warning note, I do not condemn their use, for lime and other matters may be thus furnished economically, and it is certainly better to use the refuse of a burning heap to furnish this than to spend money buying it elsewhere and allowing that at the door to waste. Economically and safely it can only be applied in small quantities. When applied for the sake of the potash they contain only, it is better to wash the soluble matter out and apply the water, or to sprinkle the ashes on the border and allow the salts to be bleached in with the rains or watered-in, afterwards removing the refuse.

Top-dressings generally consist of animal droppings or merely ordinary stableyard manure half decayed. Such will yield all the different compounds the Vines require, including potash; but as a matter of fact most of the mineral matter is in the straw and is removed with it, for it is only when the whole becomes altogether decayed that the mineral matter is available for food, and this is the reason why in farming one manuring is found sufficient for a four or a six-course rotation. Top-dressings, as we have said, are generally removed before they become so decayed as to form part of the soil, and I think this is well, for nothing so speedily makes a healthy loam inert as large quantities of decayed manure mixed with it. This evil I believe exists in nine out of every ten cases of old Vine borders, and when it happens the surface ought to be bodily removed and replaced with healthy material. Top-dressings are in our opinion more valuable as conservers of moisture and for encouraging roots upwards than for the actual food they supply.

We use urine with a view to maintaining an abundant supply of potash. That from the stables and cow houses supplies us with an inexhaustible store. Rich in potash, it is also rich in many other foods, and chief among these we may mention nitrogen compounds. It is this chiefly which makes guano valuable. Of course urine contains no phosphoric acid, but in borders containing the usual amount of bones a further supply of phosphoric acid is hardly needed. I used bones rather sparingly for two good reasons, one being that we have a tank filled always with sewage water, and that everybody knows is peculiarly rich in phosphoric acid. This sewage water is very weak, and I consider it to be of just about the same value of equally weak guano water. In times of drought we have often no other water, and I never hesitate to use it freely and with first-rate results. This is used in summer, the urine is used in winter. One thousand pounds of cow's urine contain somewhere about 40 lbs. of potash salts, say 20 lbs. of potash. Twenty pounds of potash is more than an ordinary houseful of Vines will use in a long time. This quantity is contained in half a ton of pure urine, or from four to five times as much as is contained in half a ton of ordinary stableyard manure. The reason it is used in winter is that it may be applied pure when the roots are resting without injuring them. This I have proved beyond the possibility of a doubt. The application of half a ton of liquid manure to a border is a small task compared with applying 3 tons, and when applied in summer it is not even safe when diluted to that extent. Moreover, as we have already said, it occasionally happens that the only water available here in summer is liquid manure. But above all, urine is not fit for plant food in a fresh state. The potash is bound up chemically with lactic, hippuric, and sulphuric acids, and these salts are better when allowed to soak into lumps of loam or clay, and become changed into the carbonate, in which state the roots readily and with benefit use it. Again, the urea which is in the urine also changes for the better, first to ammonia and then to nitric acid, in which states

it is readily used. By applying it in winter, then, it gets prepared to do its work just when it is required. Last, but by no means least, often urine cannot be had except during winter.

Among plant foods water occupies the chief place, just as water is the chief item in every bill of fare for animals. That is pretty well understood, and it would have been hardly worth while repeating it here. Many Vines are allowed to suffer by want of a proper supply. The amount of water that a healthy Vine will evaporate is very great, especially in hot weather, and no matter what other food is provided, unless water is used very freely first-rate results need not be expected. Those who have been most successful have all used water freely. In many cases as much as 70 or 80 inches are given in the course of a summer with advantage.

On this point I will not further enlarge, but feel constrained to point out that water is Nature's great cleanser, and that soils, more especially those heavily manured, such as Vine borders, will not long remain sweet and healthy unless water passes through them freely. When manure is always being washed into borders and none ever washed out it must remain there, and even the best composed border will become surecharged in time, and that time not a distant one, when food much in excess of what the roots remove is continually applied. The case is very simple. No one need fear the impoverishment of a properly made border by passing water through it. Only that which the clay cannot hold will pass away, while the clay will continue to hold an ample abundance. No border need ever become sour if enough lime and sufficient water be applied—that is, if it is well drained and properly constructed of suitable materials.

Such is an outline of my practice and the reasons for it, so far as the application of food to Vines is concerned. The results of this I have previously given, and they speak for themselves. At the same time the use of proper materials for forming borders and for maintaining them in a state of full and healthy fertility is only one phase, although an important one, of successful Grape culture. The management of the tops was recently discussed, no doubt with profit to all, and I then gave my practice, holding nothing back. I have done the same in this case, and in whatever discussion may follow I expect equal frankness.—SINGLE-HANDED.

MUSHROOMS FOR THE MILLION.

(Continued from page 51.)

CASING THE BEDS.

A SECTION of the casing is shown in the figure previously referred to (page 463, last volume). The thickness of the soil on Mushroom beds must be governed by its nature. If very heavy it will only need to be an inch thick when beaten as firmly as possible; if of medium texture it may be $1\frac{1}{2}$ inch thick; if light or of a sandy nature 2 inches. When the work of casing is well done it seals up the heat in the bed to a surprising extent; but it will not do this effectually if the orthodox plan is followed of dipping the spade in water, and plastering the soil, making it smooth as a cement floor. It should be made firm and also smooth, but the soil must be sufficiently moist for the necessary compression, and should be watered to make it so, if needed, before being placed on the beds. There is a very good reason for this which all who are engaged in growing Mushrooms, or trying to grow them, do not fully comprehend. When the surface is plastered like mortar it shrinks sooner or later and forms fissures. If these are produced quickly the heat and virtues of the bed escape through them; if they do not form for some weeks and the soil has become permeated with the mycelium the delicate threads are broken, and when this is the case we have no more right to expect an abundance of fine Mushrooms than we have to expect that a telegraphic

message will be transmitted when the wires are cut. It is this cutting off the lines of supply from the interior to the surface of the beds that is the primary cause of Mushrooms ceasing to grow after they have formed, turning brown, and withering. The shrinkage of the soil breaks these slender lines of communication, and they are not unfrequently severed by the weight of a man being suddenly thrown on the bed, that weight, as is common, resting on one hand for the purpose of some portion of the bed being more easily reached with the other. It is not the mere weight that does the injury, but the jerking manner in which it is applied. This may appear a small matter to dwell on, but like a number of other small matters it is of more importance than is apparent at the first glance. The withering of thousands of Mushrooms have perplexed many cultivators. The beds and house have neither been too wet nor too dry, too hot nor too cold, yet the pea-like Mushrooms have refused to move, except backwards. The snapping of the extremely brittle and cobweb-like mycelium is with much confidence submitted as the chief cause of the evil, and it is a little surprising it has not been submitted before.

TEMPERATURE FOR MUSHROOMS.

September being the month in which Mushrooms are produced the most bountifully in pastures, the temperature of that month will indicate their requirements under cultivation. It is certain that not a few failures occur in Mushroom houses by too much heat accompanied by an unduly dry atmosphere, such as is produced by hot-water pipes and a deficient supply of moisture. As a rule those houses in which Mushrooms succeed the best are kept at a temperature ranging from 55° to 60° , a genial atmosphere being at the same time maintained. Now, what do we find in the open air during the Mushroom-growing month—September? Those who will take the trouble to examine the daily September (London) temperatures for the past ten years and will take the means for the whole period will find the maximum to be 67.7° and the minimum 48.8° , or a general mean of 58.2° . How far is this from the temperature of a well-managed Mushroom house? "Rather too high," perhaps some may say. Possibly it is. Neither is the average quite fair as applied to Mushrooms, as the figures represent the temperature at 4 feet from the ground, and Mushrooms do not grow there, at any rate in the open air. On the contrary, they nestle among the much colder dew-bespangled grass, where the mean minimum radiation temperature of the past decade averaged only 47.1° . Now if we take the average between this, the lowest point, with the above-mentioned highest, we reduce the average by 1° —viz., 57.2° . This temperature is thus ample for Mushrooms; indeed, it is practically too high, as they grow much quicker during the colder air and moister surroundings of night than under the increased heat and drier air of the day. Still, were it not for the comparatively high day temperature of nearly 70° , the earth's heat would not be retained at the requisite degree for the crop; and what is this? The average for the period named is at a foot below the surface 58.1° ; or, what is a little curious, almost identical with the average mean of the air, 58.2° . As near, then, as can be ascertained from the book of Nature from 55° to 58° Fahr. may be stated as the proper temperature for Mushrooms. That they will endure more heat than

represented is unquestionable, and that they will grow freely under a lower temperature is undeniable, for this the minimum grass radiation figures demonstrate. And what do these September temperatures suggest? First, that there is a danger of keeping Mushroom houses too warm; and secondly, what is more important for our purpose, that the heat indicated can easily be maintained with a body of fermenting materials in the open air, and straw to cover the beds and arrest radiation. On a mild day in January of the present year the radiation temperature of a bed that was just commencing bearing heavily in the open air was 60° under a layer of 9 inches of straw. This was a little too high, as the Mushrooms were rather drawn. On a colder day it would have been 5° lower, and if it had been 15° colder no harm would have been done, only the growth of the Mushrooms would have been slower, or much about that of those in pastures when the radiation temperature on grass is equally low as it often is in September.

MUSHROOMS VERSUS FROST.

Cold does no real injury to Mushroom beds, it only arrests the growth of the mycelium—does not destroy it. During the severe weather of December, 1880, some outdoor ridges were frozen quite through, and were like a mass of stone, yet on the return of genial weather the same beds produced abundant crops. This is a very important fact, and shows that the Mushroom is not such a tender plant as is generally imagined, and that a failure is not likely to follow if the heat cannot be maintained at some fancy figure. But it must be stated that Mushrooms already formed are liable to injury by extreme frost. It is only the mycelium that can endure it with impunity; but this circumstance alone is gratifying, and the experience proves that Mushroom-growing on outdoor beds in winter is perfectly safe. Since these notes were written (in January) a correspondent of the *Journal of Horticulture* communicated an article containing the following evidence bearing on this subject:—"Two years ago last autumn I made two beds in a cold shed with a north aspect. They were spawned and soiled in the usual way, and then left all that severe winter. I looked at them sometimes in passing, and found them frozen as hard as a brick wall. I never expected to have a Mushroom from either of them, for I had always been taught that if a bed became frozen it would never bear any Mushrooms. In the spring I told the men to wheel both beds into the garden for manure, I happened to be present when the men started, and the first spadeful that was taken up showed that spawn had worked all over the bed like a network. I immediately stopped all operations and had the beds covered with litter, and they turned out two of the best beds of Mushrooms I ever saw."

That a low temperature is not fatal to the growth of Mushrooms is apparent from the fact of their presence at the base of hotbeds late in the autumn; indeed, fine examples have been gathered which were pushing their way through a covering of snow. This no doubt was exceptional, and was without question the effect of very strong mycelium produced direct from the spores, as previously alluded to. While such low temperatures must not be sought for, it may still be asserted with much confidence that a high temperature and dry atmosphere are inimical to Mushrooms, and the

cause of many failures and unsatisfactory beds.—J. WRIGHT.

(To be continued.)

COMTESSE DE SERENYE ROSE.

I SHOULD be glad to have information on the following questions:—Does Comtesse de Serenye open best on the seedling Briar or the Manetti? I only have one plant, which is very vigorous, but it has not opened a flower during the last three years; it is on the Manetti. Soil, well-manured good clay. It is now covered with fine buds, but none are opening. Other Roses do well in the same place.

Which stock, the seedling Briar or Manetti, is considered the best for bad-opening Roses?

I should like to have the names of about a dozen of the very darkest and the same number of the very lightest coloured Roses that are allowed to be the best?

My small stock consists principally of such coloured varieties as Marie Baumann and Alfred Colomb. I have the catalogues of all the principal nurserymen, but it is difficult for a person like myself who has seen no large exhibition of them to select from them, as they are all described either as superb, magnificent, grand, splendid, or similar superlative terms.—NOVICE.

WEST OF SCOTLAND PANSY SOCIETY.

THE third annual Exhibition of this Society was held in the City Hall, Glasgow, on the 26th ult., and was a decided success. There was a splendid display of Roses, Pinks, and Pansies, the latter forming the major portion of the Show. The competition for Show and Fancy Pansies in the nurserymen's class was very strongly contested, the first prizes being secured by Messrs. Wm. Paul & Son, Paisley, with large well-defined blooms of splendid quality. The same firm won the first prize in the nurserymen's competition for twenty-four Pinks with large double flowers perfectly laced. In the nurserymen's class for Roses Mr. Hugh Dickson, Belfast, and Messrs. A. Dickson and Sons, Newtownards, divided the honours with well-formed blooms in splendid condition. The competition for twelve hardy herbaceous blooms brought a good number forward, Mr. Peter Sinclair of Campsie gaining the silver medal with beautiful specimens. We give the principal awards.

PANSIES.

Nurserymen's Classes.—Twenty-four Show Pansies, distinct varieties. First (timepiece) Messrs. Wm. Paul & Son, Crossflat Nurseries, Paisley, with D. Malcolm, Artemis, Peter Lyle (seedling), Jas. Clelland (seedling), W. Shearer, dark self; Mr. Galloway (seedling), Mrs. Dobbie, white self; Golden Queen, yellow self; R. Pollock, D. Robertson, Bailie Cochran, R. Donaldson, Try Me Oh (seedling), yellow grounds; Fair Maid, Mrs. D. Wallace, Mrs. Muir, Mrs. J. G. Paul (seedling), Tickler, Jeannie Grieve, Sweetness (seedling), white grounds, and several seedlings. Second Mr. John Sutherland, nurseryman, Lenzie. Third Mr. Wm. Dickson, Ladyburn Nursery, Paisley. Twenty-four Fancy Pansies, distinct varieties. First (silver medal) Messrs. Wm. Paul & Son with large gorgeous-coloured blooms of H. L. Blacklaw, Mrs. H. Hunter, James Gardner, Catherine Agnes, Thalia, Livadia, Wm. Windle, Sir P. K. Murray, R. Goodwin, Tom McComb, Mrs. Jamieson, John Taylor, Mrs. Russell, Earl Beaconsfield, Schoolmaster, Hecla, Sultana, R. K. Mitchell, Wm. Stewart, and seedlings. Second Mr. W. Dickson; third Mr. J. Sutherland.

Gardeners' Classes.—Twenty-four Show Pansies, distinct varieties. First (silver medal) Mr. Hugh Stewart, Ayr, with well-grown flowers of J. P. Barbour, Robert Black, Rev. J. Morrison, Golden Circle, Mrs. Dobbie, Silverlight, Miss Baird, Miss Ritchie, Fair Maid, W. Robin, A. Cameron, Bailie Cochran, D. McHutchison, and seedlings. Second Mr. D. Findlay, Campsie. Third Mr. R. Stewart, Lenzie. Twenty-four Fancy Pansies, distinct varieties. First (silver medal) Mr. R. Stewart with large blooms of Mrs. E. H. Wood, Mrs. Findlay, Mrs. Jamieson, Hecla, Countess of Home, Mrs. Scott Plummer, W. McIntosh, Mrs. Russell, W. Windle, Ringleader, Jane Adair Martin, Catherine Agnes, G. Nettleship, Earl Beaconsfield, Mrs. J. Watt, Hugh Paton, Mrs. Taylor, and seedlings. Second Mr. D. Findlay; third Mr. A. Duncan, Paisley.

Amateurs' Classes.—Eighteen Show Pansies, distinct varieties. First (silver medal) Mr. D. Malcolm, Kirkintilloch, with lovely blooms of Alex. Watt, Rev. J. Morrison, Crosshill Gem, Mrs. Cadzow, Gomer, Mrs. Dobbie, Mrs. Muir, Mrs. Ritchie, Mrs. Arthur, Miss Ritchie, R. Burns, J. B. Robertson, and seedlings. Second Mr. John Stewart, Campsie. Third Mr. J. S. Ritchie, Denny. Eighteen Fancy Pansies, distinct varieties. First (silver medal) Mr. D. Malcolm with grand blooms of Mrs. Forrester, Catherine Agnes, Mrs. Jamieson, Alex. Stephen, Master Dan, R. Goodwin, Mrs. Russell, Earl Beaconsfield, Sir P. K. Murray, Ringleader, Mrs. J. Stewart, Perfection, Mrs. E. H. Wood, Lady Falmouth, D. Wallace, and seedlings. Second Mr. J. Stewart; third Mr. Jas. Black, East Calder.

Open Classes.—Twenty-four Show Pansies, distinct varieties. First

(silver medal) Mr. William Storrie, Lenzie Junction, the most noteworthy blooms being J. P. Barbour, J. Dalziel, Alexander Watt, D. Malcolm, G. McMillan, W. Crockhart, Snowball, Mrs. Cadzow, Mrs. Ritchie, Mrs. D. Wallace, Miss Ritchie, Captain Speirs, Jeannie Grieve, R. Pollock, Mary McComb. Second Messrs. William Paul & Son. Twenty-four Fancy Pansies, distinct varieties. First (silver medal) Mr. William Storrie with magnificent flowers of W. McIntosh, James Reid, Catherine Agnes, A. Stephen, Mrs. Scott Plummer, Mrs. Barrie, Mrs. Kidd, R. Goodwin, Mrs. Taylor, Earl Beaconsfield, Mrs. McTaggart, Luck's All, Mrs. Jamieson, J. C. Murray, L. V. Heathcote, G. H. Gill, Mrs. Main (seedling), Bob Montgomery (seedling), Mrs. Storrie (seedling), R. Cowan, Perfection, Mrs. E. H. Wood, W. Cuthbertson, and W. Dickson. Second Mr. John Stewart, third Mr. A. Duncan.

PINKS.

Nurserymen's Classes.—Twenty-four blooms, distinct varieties. First Messrs. William Paul & Son with Wm. Paul, W. Murray, D. Saunders, Premier, W. Bruce, Dr. Masters, Henry Cannell, Col. Holms, Emmeline, Bertram, Egeria, Nelly, Modesty, Emily, Captivation, William Kilgour (seedling), and eight seedlings. Second Mr. W. Dickson, third Messrs. Dicksons & Co., Edinburgh.

Gardeners' Classes.—Twelve blooms, distinct varieties. First Mr. A. Duncan with Wm. Paul, W. Murray, Bertram, Tottie, Modesty, Enid, Mrs. G. Dickson, Dr. McLean, Ada Louise, W. Bruce, Egeria, Teaser. Second Mr. J. Stewart, third Mr. J. T. McCrorie, Kilbarchan.

Amateurs' Classes.—Twelve blooms, distinct varieties. First Mr. W. McIntosh, Glasgow, with Wm. Paul, Oimara, Adela, Ada Louise, Wm. Edmiston, J. Carswell, Kittiwake, John Facer, Fireman, Mary Auberton, John Ball, Bertram. Second Mr. A. Borrowman, Glasgow; third Mr. D. Dalglish, Glasgow.

ROSES.—As before mentioned, Mr. Hugh Dickson and Messrs. A. Dickson & Sons secured the chief honours in the nurserymen's class, the former being placed first in the class for forty-eight blooms, the latter having the premier position with twenty-four blooms. In the gardeners' classes the prizes were secured by Messrs. Wm. Parlane, Row; John McColl, Row; and John Stewart, Campsie. In the amateurs' classes the successful competitors were Messrs. D. Wallace, Rothesay; D. Black, Blairmore; and John Kidd, Rothesay. In the class for twelve blooms Tea or Noisette Roses, distinct varieties, Mr. A. H. Gray, Dunkeld, was first with beautiful flowers; and Mr. Wm. Parlane second.

HARDY HERBACEOUS FLOWERS.—For twelve distinct, first (silver medal) Mr. Peter Sinclair, Campsie, with large spikes and trusses of *Linaria purpurea*, *Actæa spicata*, *Stenactis speciosa*, *Achillea serrata*, *Alstromeria aurea*, *Potentilla* Wm. Rollisson, *Coreopsis lanceolata*, *Lychnis chalcidonica* fl.-pl., *Gaillardia Admiration*, *Mimulus cardinalis*, and *Lychnis dioica* alba fl.-pl. Second Mr. D. Findlay, third Mr. J. Stewart.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION—A GARDENER'S APPEAL.

THE Committee of the Gardeners' Royal Benevolent Institution have made another praiseworthy effort to augment the pension fund, and it is hoped the money required will be secured. There are many gardeners not in a position to do much. Several have large families, some with a heavy doctor's bill, almost yearly; others assist in maintaining an aged father or mother, perhaps both; some have an invalid brother or sister; education for the children and periodicals for himself that he may know what is going on in the gardening world have to be provided, all of which prevent a man from doing what he would in other matters.

Whether in spring, summer, autumn, or winter a gardener's work is never done. He must face all weathers—hail, rain, storm, and tempest, heats and cold: no wonder so many of the craft suffer so much with rheumatism, &c.

There are many pleasures in gardening and many disappointments, great responsibility, and many enemies to contend with. No one but the gardener himself knows the hundreds of jobs which are daily staring him in the face, many of which he knows can never be done, and others are hurried over too quickly to his liking. As gardeners have contributed much pleasure and information to the masses, I think it would be a good thing if all the gardeners in the United Kingdom were to ask their employers to allow their gardens to be open to the public for one half day. I believe most if not all would agree to the same if it was put fairly before them.

There are upwards of 2300 noblemen's and gentlemen's seats in this country, and the sums obtained by admission fees would be from £1 to £50 according to the size of the grounds. Supposing it averaged the low sum of £5 all round, it would come to the handsome amount of £11,500; or should it reach £10 on the average, it would be £23,000 (I hope I am not building castles in the air). This would, as all will agree, put the institution on a good sound footing, and would make the pensions £25 for old gardeners and £20 for their widows.

I would suggest that as many gardens as possible should be open on bank holidays; if not convenient to the proprietor on those days, then any time in May, June, July, August, or September. No two gardens within ten miles of each other should be open on the same day.

There are plenty of people who would gladly pay their shilling to look round a large garden, many for the sake of information, which would, therefore, pay in a twofold way.

I would propose the admission fees to be 1s. from 1 to 4 P.M., and 6d. from 4 to 8 P.M.; children under twelve half price, and the village school children free. Non-alcoholic drinks (tea, coffee, &c.) should be provided at cost price, gardeners to get all tickets and bills printed, the latter to be well posted two or three weeks before the event, and well advertised in the local papers. Music I think will be indispensable, as flowers and music always blend well. Flags can often be borrowed or hired for a trifle. Lawn tennis, cricket, and summer games for the youngsters would make up a good afternoon's amusement. In agricultural districts it will be advisable to have what I will call "the grand fête" either before or after harvest.

All gardeners who will be able to send up to headquarters the sum of £10 10s. and upwards to be qualified for such sum as a life subscriber with all its privileges from the date on which the above sum was paid.

And now, as a start, I have asked my noble employers Lord and Lady Henniker to comply with this project, and their answer was, "Yes, with very great pleasure."

We hope to have our half-day the early part of September, or as soon after harvest as possible.

I feel sure my brother gardeners will do their best for a good cause, and I hope by the end of September, 1883, the worthy secretary, Mr. Cutler, will be able to give a very satisfactory report.—JOHN PERKINS, *The Gardens, Thornham Hall, Eye, Suffolk.*

[We commend this excellent suggestion to all owners of gardens and their gardeners. The object for which support is needed is so worthy and the method of increasing the funds so appropriate, and further the pleasure that thousands would derive by a visit to the best gardens in their districts would be so great, that on every good ground the project is deserving of encouragement. In the meantime Lord and Lady Henniker with their excellent gardener Mr. Perkins deserve a hearty vote of thanks from the entire gardening community for their willingness to inaugurate a scheme which, if it can be well and systematically carried out, will be fraught with pleasure to the healthy and substantial benefit to the afflicted and infirm who have been prevented making provision for their needs when their strength fails them. We shall await with interest the results of the experiment at Thornham Hall.]

LILIUMS AND HYACINTHUS CANDICANS IN POTS.

I DESIRE the advice of some of your contributors as to what is best to be done with Lilies, such as the *L. lancifolium*, *L. umbellatum* and others, when they have been forced in pots so as to make them available for another year.

Hyacinthus candicans *alias*, I believe, *Galtonia*, is well worth pot culture, three bulbs in a 7 or 8-inch pot. I have never grown it before this year, but it has done very well with me, and produced tall free-flowering spikes from 3 to 4 feet high, which do well as a centre to other plants. I wish to know whether the same bulbs are of any use for blooming another year, or whether it is better, as with other *Hyacinths*, *Narcissuses*, &c., to plant them out in a perennial border to make fresh bulbs to bloom in another two years or so.—C. P. P.

PLAGIARISM.

I BEG to direct your attention to an article on page 69 of the *Garden* of the 22nd ult. on the Culture of *Allamandas*, written by some needy individual signing himself "D. D., *Nash Court, Faversham, Kent.*" Almost the whole of this article has been stolen from my article under the same heading that appeared in the *Journal of Horticulture*, August 7th, 1879, page 101. This certainly is one of the most glaring examples of plagiarising I have seen for some time. You will observe that "D. D." has altered a word or two here and there, shortened a few sentences, and transposed others; but no one can doubt that he has substantially copied my article, and palmed it on the public as his own. For my own justification in preferring a charge so discreditable as this is I must request that you publish the two articles in parallel columns. I question if a more flagrant example of literary pilfering or a more clumsy attempt at altering has ever been seen. It would be interesting to know if this is the first attempt of "D. D."

in work of this nature; but be that as it may, it is to be hoped it will be the last.—WM. BARDNEY.

CULTURE OF ALLAMANDAS.

Journal of Horticulture, August 7th, 1879:—"Allamandas are not only ornamental but useful for a variety of purposes, either grown as climbers up the roof of a stove, or for the decoration of the conservatory during the latter part of the summer. For the purposes named the plants produce a fine effect when well grown, and to accomplish this end they should be treated liberally. Allamandas are capable of producing flowers for eight months out of the twelve; they are easy to grow, and do not require so long a season of rest as many people suppose. Seven or eight weeks' rest is sufficient. Neither is bottom heat necessary in any stage. They succeed well either in pots or planted out. We would recommend large pots in preference to planting-out, as water can then be given and withheld at will, and the soil partially removed and renewed at the proper season.

"Propagation is effected by means of cuttings from the young shoots taken off close to the wood of the previous year; they should be inserted in small pots singly and placed in a Melon house, and must be shaded from the sun. They are not particular as to soil in this early stage. We employ light turfy loam with a dash of sand in the centre of the pot for the base of the cuttings to rest on. We may here say that the lovely species *A. grandiflora* is best managed by being grafted on any of the stronger species, such as *Schottii* or *Wardleyana*. In grafting it is important that the wood be ripe, both of the stock and the spray that is to be employed for the scion. They can be inured similarly to Vines. Supposing the stock is in a 3 or 4-inch pot it should be shortened well back to within 3 or 4 inches of the soil; any of the ordinary modes of grafting employed for Roses, young fruit trees, &c., will answer well. The piece employed for the scion should contain two or three buds, and after carefully fitting the two together they must be made secure with worsted where the union is to take place, and be then well rubbed over with clay or grafting wax. This being done they must be placed in the propagating frame, where they can be carefully attended to until growth has commenced and the union is complete. When root-action is becoming vigorous they should be transferred into larger pots. This species grows much slower than any of the others, but its flowers are produced very freely.

"*Allamanda nobilis*, *A. Schottii*, and the old *A. cathartica* are all worth growing where a collection is the object. *A. grandiflora* and *A. Wardleyana* are the two most worthy of a place. We recommend Mr. Wardley's, which is named after him, and very frequently seen under the name of 'Heudersonii.' It will produce nearly double the number of flowers that *A. Schottii* will; the flowers are as large or larger in size with as much substance, and the brown markings are more prominent in the throat or tube than in its parent *Schottii*, while it possesses the light markings of its other parent *cathartica*. The young plants must be grown on rapidly. We might here say that the Allamanda can be grown too strongly and robustly the first or second season. To guard against this the wood must have light, sunshine, and air when developing its growth rapidly to solidify the wood. Another important item is that very firm potting is required. The plant will then rest, and when cut back and again started in January or February it will grow freely. On the other hand, if not firm and ripe when pruned it often dies back.

"The young plants when well rooted in 3-inch pots must be transferred into 6-inch pots, using this time loam, sand, a seventh of manure, and a little leaf soil, which will assist them to start freely into growth. After this potting the compost we find most suitable is rich fibry loam, a seventh of manure,

CULTURE OF ALLAMANDAS.

The Garden, July 22nd, 1882:—"Allamandas are, as is well known, useful both in pots and as roof climbers in conservatories during the latter part of the summer. Thus used, if well grown, they produce a fine effect. For this purpose they should be treated liberally, and if healthy and vigorous will keep in flower at least eight months out of the twelve; they are easy to grow and do not require so long a season of rest as many people suppose; eight or nine weeks' rest will be quite sufficient. They will succeed without bottom heat, but are much benefited by it when making their growth. I like large pots better than planting out, as in that case water can be given and withheld at any time, and the soil can be partially removed and renewed when required.

"In propagating use cuttings made of the young shoots taken off close to the wood of the previous year. They should be inserted in small pots singly, and placed in the propagating house or pit, and shaded from bright sunshine. In their early stage Allamandas are not particular as to soil. We employ light turfy loam, with a small portion of sand in the centre of the pot for the base of the cuttings to rest on, and then place them in a bottom heat from 80° to 85° with bell-glasses over them. I should add that *A. grandiflora* does best grafted on some of the stronger species, such as *A. Schottii* or *A. Wardleyana*. In grafting it is important that the wood be ripe enough both as regards stock and scion. Allamandas may also be inured similar to Vines. Let us suppose that the stock, in the case of plants to be grafted, is in a 4-in. or 5-in. pot: it should be shortened back to within 3 in. or 4 in. of the soil. The scion should contain three or four buds, and after carefully fitting the two together, as in Rose or fruit-tree grafting, they must be made secure with matting where the union is to take place, and be then well rubbed over with grafting wax. This done they must be placed in a propagating pit, where they can be carefully attended to until growth has commenced and the union has become completed. When root-action is getting vigorous they should be shifted into large pots. *A. grandiflora* grows much weaker than any of the others, but its flowers are produced very freely. *A. nobilis* and *A. Schottii* are both worth growing where a collection is the object, but *A. grandiflora* and *A. Wardleyana* are the two best. The latter will produce double the amount of flowers that *Schottii* will, and the flowers are equally large, and even larger in size, equally good in substance, and with more prominent markings in the throat or tube. The treatment that applies to the one will also suit the other, but *grandiflora* requires more careful cultivation. *A. Wardleyana* should be propagated early, and the young plants must be grown on rapidly, but not so rapidly as to cause weak growth. To guard against this the wood must have light, sunshine, and air to ripen it. Another important point is firm potting; the plants will then rest, and when cut back and again started in January or February will grow freely, while, on the other hand, if not potted firmly and the wood is not ripe, the shoots often die back when pruned. On plants in 16-in. pots, and treated as has just been recommended, we have had thousands of fully expanded blossoms and buds.

"Young plants when well rooted in 3-in. pots should be transferred to 7-in. ones, using this time loam, sand, and a sixth part of sheep manure which will assist them to start freely into growth. After this the compost which we find most suitable is rich fibry loam and one-third sheep manure. In this the young plants grow rapidly, and should be moved into 12-in. pots the first season. The leading shoots when about 1 ft.

From the *Journal of Horticulture*—continued—

and sufficient coarse sand to make the whole porous. The young plants will extend rapidly, and can be shifted into 12-inch pots the first season. The leading shoot when about 1 foot in length should have the point taken out and two shoots allowed to grow instead of one. No better place to train them can be found than under the roof of a stove, in an upright position. By the end of the season the two shoots will be strong; they should be well ripened and receive a good rest. Our mode of resting is to withhold water when the wood is ripe until the foliage flags. Very little water is given afterwards, only sufficient to keep the wood plump.

"The cultivator in pruning must be guided by the condition of the wood and the distance the shoots can be laid to the right and left of the pot. If thoroughly matured a yard on each side can be left. The ball of the plant if very dry should be partially shaken out and steeped in tepid water. After being thoroughly soaked and the water well drained from the soil the plant can be placed in a pot either the same size or larger, the latter will be the best, using the compost recommended, and the soil must be rammed firmly into the pot.

"Allamandas can be potted as soon as pruned back, but we prefer leaving them a time to rest after the final pruning. No attempt is made to wait until the plant breaks into growth before the operation is carried out. Very little water is needed at the root until root-action and leaf-growth have well commenced. If the wood at the pruning time was well ripened bloom will be produced when the young shoots are about 18 inches in length. The second season a good quantity of bloom will be produced. The plants will continue branching and flowering until late in the season, when rest to a large extent has to be forced on them. With two batches of plants, one started early and the other late, Allamanda blooms may be had all the year.

"If desirable to extend the plant two shoots, one on either side, should again be left at pruning time a yard or more long and trained horizontally as before; the other shoots should be pruned back to one or two eyes like Vines on the spur system. Plants can in this way be extended until they fill the whole side of a house. The syringe is sometimes necessary if the small yellow thrips makes its appearance in the points of the shoots, which if allowed to remain soon does much damage. Nothing is better than the syringe to keep down this insect, it does not like water. With plenty of moisture in the atmosphere and the plants growing rapidly there is little fear of its attacks. In our mode of treatment the syringe is seldom used—never after the first flowers make their appearance.

"The Allamanda while growing requires liberal applications of water, and is much benefited with liquid manure when the pots are full of roots. It is something wonderful what a large amount of growth the plants can support with limited root room, provided they are liberally supplied with water and their wants attended to in other respects.—WM. BARDNEY."

From the *Garden*—continued—

in length should have their points nipped out, and two shoots should be allowed to grow instead of one. No better place to train them can be found than under the roof of a stove in an upright position. By the end of the season the two shoots will be well ripened and should receive a good rest. Our mode of resting is to withhold water when the wood is ripe until the foliage flags, and very little is given afterwards—only just sufficient to keep the wood plump. The pruning before starting into growth must be in accordance with the condition of the wood and the distance the shoots can be laid to the right and left of the pot; if thoroughly matured, a yard on each side may be left. The ball of earth, if very dry, should be partly shaken out and steeped in tepid water. After being thoroughly soaked and the water well drained from the soil, the plant can be placed in a pot the same size or a little larger than that it was in, using the compost recommended, which must be rammed firmly into the pots. As soon as pruned back the plants may be potted, but I prefer leaving them for a time for rest after the final pruning, but the plants should not be allowed to break into growth before they are potted. Very little water is needed at the roots until root-action and leaf-growth have well commenced. If at the pruning time the wood was well ripened, blooms will be produced when the young shoots are about 18 in. in length.

"The second season a good quantity of blooms will be secured, and the plants will continue branching and flowering until late in the season, when they should be allowed to rest. With two batches of plants, one started early and the other later, Allamanda blooms may be had all the year round. If it is desired to extend the plants, two shoots, one on each side, should again be left at pruning time a yard or more long, and trained horizontally as before; the other shoots should be pruned back to one or two eyes like Vines on the spur system. Plants thus managed may be extended until they fill the whole side of a house. Syringing will be necessary if the small yellow thrips makes its appearance on the points of the shoots, for, if allowed to remain, it soon does much damage; nothing is better than syringing to keep down this insect. It dislikes water. However, with plenty of moisture in the atmosphere and the plants growing rapidly, little fear need be entertained of its attack. Under our mode of treatment the syringe is seldom used—never after the first flowers make their appearance. Allamandas while growing rapidly require liberal applications of water three or four times daily, and are much benefited by applications of liquid manure when the pots are full of roots. It is wonderful what a large amount of growth these plants can support with but limited root room, provided they are liberally supplied with water, and their wants in other respects are attended to.—D. D., *Nash Court, Faversham, Kent.*"

[We cannot properly refuse to comply with Mr. Bardney's request, and we have the less hesitation in reprinting the article since it is a record of sound and successful practice that will be useful to new readers. The article was originally written by our special desire after having seen the admirable manner in which Allamandas were grown by Mr. Bardney, and possibly our commendatory note at the foot of the paper influenced "*D. D., Nash Court, Faversham*," in the selection of a subject for pilfering purposes. We may add that this is by no means the first instance that has been brought to our notice of the alleged concoction of articles from our pages. Unscrupulous writers who impose on editors in this manner can only be characterised as literary parasites, and when discovered should no longer be permitted to "adorn" the pages of public journals. We have ourselves been victimised once, and the writer was informed that no further com-

munications could be accepted from him under any circumstances. Had we acted otherwise we should have become parties to a practice that cannot be too strongly condemned. We should like to know who the present plagiarist is. Unless there has been any change since the "Directory" was published he is not the gardener at Nash Court, but this is a matter that can be explained; at any rate "D. D." has made himself notorious as a mere scribbler and copyist, and we must express our conviction that such individuals should not be encouraged to act as "instructors" (?) to the gardeners of this country. We have taken a few introductory lines from both the articles, and a few sentences from Mr. Bardney's, but have not altered those remaining, nor have we expunged a word from or altered a sentence in the citation from our contemporary. Impartial readers can now form an opinion on the whole matter.]

VINE CULTURE AT LONGLEAT.

AS Mr. Taylor has now finished his articles on this subject, perhaps you will allow me to make the following observations on some of his statements thereto. As Mr. Taylor's success as a Grape grower has been brought about by a system of culture which others, including myself, have advocated in the case of both the Vine and the Peach and other fruits before Mr. Taylor had a word to say on the subject (I mean "extension" v. temperatures, the main features of his essay), it can afford them nothing but gratification to hear of that success; but when he tells your readers that he had "*never yet read an essay on Vine culture,*" that his system of culture is "*the plan we should probably follow if we had never heard of any other,*" and that "*that will probably account for his following it,*" I think he is taxing the credulity of his readers a little too far. To speak plainly, had he not made these declarations I should have concluded that he was perfectly familiar with every essay that had been previously written on the Vine, for his articles contain what to anyone would appear conclusive evidence of the fact; and when I came on the following passage of his I think I might well have been excused for thinking that he had read a certain essay of my own, published in a contemporary about two years ago. I put the passages in opposite columns.

Mr. Taylor's version.

"Cutting down the stem of a Vine does not add to the vigour of the growth produced in the same way or in the same proportion as cutting back does in the case of the Apple, Peach, or other fruit tree. The superiority of the shoot made when a young Vine is cut down which has ample roots to sustain a large amount of stem and foliage is more apparent than real, as may be seen afterwards when it comes to ripen. . . . The growth at the end of a young healthy Vine left 12 feet long will not compare unfavourably even at starting time with that of a similar Vine which is cut down to the ground."

My version.

The Garden, August 14, 1880: "Neither do I believe that the mere cutting back of a Vine induces a permanently stronger growth, or adds in any way to the vigour of the Vine. How can it? The rebound that a cut-back Vine rod makes when it begins to grow again is more apparent than real, but it is certain that the Vine which is allowed to make the most growth and pruned the least lays on timber fastest and thickest. For example, a Vine that makes 20 feet of cane the first year, if left that length at pruning time, will, provided it breaks all its buds regularly, make just as good a Vine in the end as one which is cut back annually."

I think the similarity of these two passages and the order of the words and ideas would strike an expert in such matters, as to my knowledge they have struck others of your readers besides myself as exceedingly singular coming from one who has never read any essay but his own. In the same chapter from which these remarks of mine are taken I also discuss the merits of young Vine rods 12 feet and 60 feet long, and in his chapter Mr. Taylor does the same, reasoning to the same effect upon them; while, according to his own statements, it does not appear that he ever had young Vines either 12 feet or 60 feet long, while I have had both, and have described them accurately more than once. That portion of his remarks cannot apply to his Vines at Longleat, but must have been taken for granted, I imagine, from the experience of others.—J. S. W.

As a reader of the Journal I have been very much interested in the papers contributed by Mr. Taylor on the culture of Vines at Longleat. Permit me, therefore, to ask if the papers will be published in book form, and if so when, also where it may be obtained and at what cost. If you would kindly impart this knowledge through the Journal I doubt not it will be serviceable to others, and it will oblige—C. K.

[It is the intention of Mr. Taylor to have his articles published in the form of a cheap manual. This is now being prepared, and the particulars requested will shortly be announced.]

At page 32, in my notes on the Longleat Vines, there occurs an error that may have puzzled not a few, and I hasten to put it right. I am made to say: "As for the advantage of air-giving, the system of giving air at the front only is, I hold, radically wrong." Instead of "the front" it should have been "two points"—namely, top and bottom.—SINGLE-HANDED.

NOTES ON VEGETABLES.

WHEELER'S IMPERIAL CABBAGE.

ALTHOUGH this has been in commerce some years, it does not as yet appear to be so well known as it deserves to be, and for what reasons I am unable to say. This much, however, I can freely assert—viz., as an early spring and summer Cabbage I know of none to equal it, and on this account I would strongly commend it to the notice of those with whom it is a stranger. Its character may briefly be described thus—Medium size, conical in shape, wonderfully crisp and of excellent flavour, with heads at this time of the year as hard as a bullet. It may be as well to state that it was raised and sent out by that veteran florist, the late Mr. George Wheeler of Warminster; and to make sure of obtaining the true variety I would recommend those who wish to grow it to procure a packet of seed from the present representative of the firm, Mr. James Wheeler.

LETTUCE.

By what particular name a variety which was sent me for trial some time ago is going to be sent out under, I know not. Still, I think it will not be any breach of confidence to state, for the information of your readers, that a packet of seed was sent me by Messrs. Cooling of Bath, with a request that I should give it a fair trial and report to them accordingly in due course, it being at the time stated to be a selected variety from that general favourite Bath Cos, and of which, it may be added, there are so many types. Respecting the particular variety under notice, I can honestly say that it is a decided improvement on the original Bath Cos, being much broader in the leaf, more crisp, and of larger size, and last, though not least, of sufficient hardness to stand through the winter. That it will be extensively grown when its merits are well known and when it is distributed there cannot be a doubt, but as to when it will find its way into commerce I am not in a position to state. Of novelties which are of sterling merit, enormous quantities of seeds or plants, as the case may be, are required to meet the trade and retail demand, and under these circumstances the public may have to wait some time before they will have an opportunity of verifying for themselves what is stated above.

PEAS.

Of these there are so many varieties, that to those who are not perfectly acquainted with each it becomes a somewhat difficult task to make their selections when scanning through the catalogues of some of our leading firms. The following varieties may be depended upon, and, I might almost say, would give satisfaction to the most fastidious of critics—viz., William I. for very early supplies, Telegraph, Stratagem, Veitch's Perfection, Marvel, and Ne Plus Ultra. Given these six sorts, a continuous supply of finest flavoured Peas may be had from the end of May to October.

TURNIPS.

Early Munich is an acquisition and a valuable friend early in the spring. It has quite superseded our old favourite Early Stone and other well-known varieties. Where Turnips are in demand every day in the year, as they are here, the above and Chirk Castle are the only sorts I find it necessary to grow.—ET CÆTERA.

ŒNOTHERAS.

AMONGST Œnotheras, which are generally hardy in the unkindly climate of Cheshire, perhaps the most useful for mixed border decoration is Œ. fruticosa or Œ. Fraseri, for I am unable to make any constant or well-defined difference between the two. In spite of its name it seldom assumes a shrubby habit, being generally truly herbaceous, and certainly doing best when starting fresh from the ground in spring. It has a very long flowering period, lasting for two or three months from early summer. It does not spread much in breadth, but the shoots soon become so densely crowded on the crown that they cannot be properly developed, and the plants ought to be pulled to pieces and replanted every third year. It grows from 2 to 3 feet high, but needs supports.

Œ. Youngi has decidedly larger and handsomer flowers, but is more straggling and less upright in growth, though it comes very

near the last species. If carefully tied and well managed it is superior to *Œ. fruticosa*, having nearly the same flowering period. It does not increase nearly so fast at the root and grows best from cuttings, which strike readily at any time. It seems by nature to be a prostrate plant.

Œ. marginata has the most beautiful flowers of any of the genus, but they last a very short time. It is a dwarf rapidly spreading kind with very large fragrant white flowers, which turn pink before they fade. It requires a rich open soil, and produces flowers in rapid succession from the middle of June till August. I find it best to confine it in an earthenware hoop 12 inches in diameter sunk to the upper rim in the soil. This keeps it in a compact mass, so that the flowers produce a better effect.

Œ. taraxacifolia is often treated as a biennial, being liable to die in severe winters after flowering. It is easily preserved by cuttings kept in a cold frame during winter. It does not run, but its prostrate branches cover a good deal of ground. The flowers are large, white, and handsome, though smaller than those of the last species, with which it vies in showiness.

Œ. macrocarpa or *missouriensis* is a well-known old favourite, easily raised from seed, and having a similar habit to the preceding species. Like that kind it does not spread its rootstock, but is perfectly hardy and lasts for many years. It is useful for growing with tall plants, at the base of which it trails, seeming to delight in the shelter they give.

Œ. speciosa hardly deserves its name. It has an upright growth of about 2 feet. The flowers are moderate in size and of a dull white, and the general appearance of the plant is rather shabby and common. It is a most tiresome runner, and if not confined to one spot will come up everywhere but where it is wanted. Still, it is very distinct from all other *Œnotheras* and should be tried.

Œ. riparia is a prostrate and very floriferous plant, increased easily by cuttings, but sometimes killed by severe winters. The flowers are small and the leaves slender, but it is one of the neatest of the *Œnotheras* for positions near the edge of a border or for a rockery. I always keep a panful in a cold frame through winter to avoid losing it.

Œ. pumila is a neat dwarf plant, with small yellow flowers about the size of those of the common Willowherb.—C. W. DOD.

ROYAL HORTICULTURAL SOCIETY.

THE following reports of exhibits at South Kensington on the 25th ult. did not reach us in time for insertion last week:—Late in the afternoon, after the meeting had dispersed, a very interesting consignment was received from M. Girardin-Collas, Horticulteur, Argenteuil, comprising two baskets of very fine fruits of the Figs *Blanches d'Argenteuil*, which seems to be the same as what is known in this country as White Marseilles, also bearing shoots of the same variety, and *Violette Dauphin* clustered with large and fine fruits; a basket of *Apricots Plein-Vent d'Argenteuil*, very large and fine, with a deep rosy red hue, almost unknown in this country, remarkably beautiful; a basket of roots of the *Cerfeuil Bulbeux* (Tuberous Chervil), about the size of Early Horn Carrots; and several examples of the one-year-old *Asparagus* plants, particularly strong, *Asparagus* culture being a great speciality of M. Girardin-Collas.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Ræstetia lacerata.—Dr. M. T. Masters showed specimens of the common Hawthorn badly attacked by this fungus.

Hybrid Tacsonia.—He also showed a blossom of a plant, the result of crossing *T. exoniensis*, itself a hybrid, with *T. Van Volxemi*. He will report further upon it.

Rhododendron camelliaeflorum.—Mr. Mangles exhibited a spray of this late-flowering species, having but one flower instead of two as described by Hooker. It is a native of Sikkim, growing in a pendulous way from trees and rocks. The foliage agrees with the so-called *R. Maddeni*. Mr. Mangles thought it might be identical with *R. sparsiflorum*, *Booth*, of Bhootan.

Diseased Rhododendron Leaf.—He also brought a leaf spotted with black as if by a fungus. It was referred to Mr. Smith for examination and report.

Hollyhock Disease.—Mr. W. G. Smith gave an account of his planting healthy seeds of Hollyhock and others affected by *Puccinia*. He sowed twenty tainted seeds. One survived of two only which germinated. This one appears to be unaffected. Of fifty healthy seeds all germinated. After the third week leaves of common Mallow affected with *Puccinia* were scattered amongst them; in less than a week forty-six of the seedlings died of the same disease. M. Du Port of Mattishall writes to say he has also found the leaves of seedlings of Hollyhock to be covered with the disease.

Rhododendron Hybrids.—Mr. Veitch sent cut flowers illustrating his seedling hybrids just raised. A flower of a hybrid of unknown parentages, showing a slight tendency to be double, was artificially self-fertilised. Of this several seedlings were obtained, five having lately flowered—a deep rose (*balsamæflorum*), a double white, a semi-double yellow, a salmon, and a semi-double rose. A remarkable

feature in these seedlings is that crossing white with orange a pink is the result, and that a calyx is begun to be developed, that organ being wanting in *R. jasminiflorum* from which they are descended. Mr. Henslow remarked on the general tendency to suppress the calyx in flowers which are small and massed together as in *Rubiaceæ*, *Caprifoliaceæ*, *Umbelliferae*, &c., and suggested that its return was due to those seedlings acquiring a larger size of flower, and there being fewer in the truss than in *R. jasminiflorum*.

STRAWBERRIES EATEN BY BEETLES.

WE are apt to imagine that our experience is that of others, and it was therefore with some surprise that I read the editorial comment on "E. D.'s" communication at page 61 of the Journal, but I could certainly not call to mind a recorded instance of damage inflicted on Strawberries by black beetles. For years we have had to contend against the attacks of these insects; and though I cannot boast of much success in reducing their numbers, I do not now fear them, and if my experience is of any use to your correspondent I willingly place it at his service. It appears that only one species of beetle troubles "E. D.," but here we have several, all, I believe, closely allied, one of which is very small, but is destructive out of all proportion to its size. Our knowledge of the love of beetles for Strawberries was dearly bought, for it was on the forced fruit that they commenced their attacks, and I well remember how mystified we were at finding every morning a number of fine berries spoilt and could not discover an enemy. The Strawberries in question were planted out in a bed of soil, and for some time the only discoverable living creatures were some frogs which were, I am now ashamed to say, accused and convicted on no greater evidence than their presence in considerable numbers. But the banishment and execution of these inoffensive creatures did not stay the mischief, and then we took to bribing the nocturnal enemy with breadcrumbs strewn thickly over the bed, all of which disappeared; but no matter whether in the daytime or evening, the consumers of this wholesome repast were never visible, but the fruit did not suffer so much—in fact by the aid of many quatern loaves the crop was saved. Little by little, however, the truth dawned upon us, and after many trials we defeated the thieves by simply propping up the fruit on twiggy birch, and have never since suffered when we have adopted timely precautions. We grow here a considerable quantity of Strawberries for market, but we could not do so did we not set every fruit up from the ground, for I really believe that a place more infested with beetles does not exist in the whole world; and I am certain that if the berries laid on the soil, quite 90 per cent. of them would be eaten or so disfigured as to be rendered unsaleable.

What is curious about these insects is, that although they climb up walls when confined in a dwelling or in frames they scarcely ever attack a fruit if it simply rests on a piece of tile or on a brick; indeed we found that even placing them on so thin a material as glass sufficed to preserve them. From what I have observed these beetles love concealment, and endeavour to burrow in the soil underneath the Strawberry before attacking it, so that in a general way the under portion of the berry suffers. My advice would be to make a practice of raising the fruit off the ground as soon as it is formed, using some of the manufactured Strawberry supports, tiles, or twiggy birch, in the forks of which the berries will rest quite safely. There is no need to tie the flower stalks, and if the birch is used green it is easily cut up—an employment for wet winter days; and if drawn out as soon as the crop is over and stored away in a dry place will last several years.

As the outcome of experience, I will give "E. D." a hint which may prove useful to him. We have found that when the plants are thickly set together the foliage, intercrossing as it grows, in a great measure supports the fruit, so that but little of it touches the soil; and we do not then find the beetles do much damage, especially if the surface is made firm and kept free from littery material, for the more muleh the more beetles. A top-dressing with Clay's manure when the plants start into growth will give all the nourishment they need; and as the sun cannot penetrate the thick screen of foliage to parch the roots beneath it, the necessity for mulehing is done away with.—J. CORNHILL, *Byfleet*.

I CAN assure your correspondent "E. D.," in the Journal of July the 20th, that his is no solitary case, for I have been troubled with the beetles for several years past, and some of my brother gardeners have suffered in the same way. At first I thought it was mice that caused the mischief, for the beetles nibble the seeds of the Strawberry the same as mice. I do not think anything in the way of dressing will destroy them; I make a point of killing every one I see. Toads will eat them, and so will

young chickens. I may say that I have been but little troubled with them this season. My soil is light and stony.—J. P., *Erith*.

FLOWERING SHRUBS.

SPRING is the flowering season of most of our best shrubs, and it is then that our gardens assume their gayest, brightest aspect; and when "Rhododendron time" is over and summer comes swiftly onwards, its lengthening days and increasing heat bring with them very few flowers besides Roses among the shrubs, and a comparative dullness prevails where but a short time before all was brightness and beauty. All summer-flowering shrubs and plants suitable to associate with them are welcomed and cherished with loving care; but after all has been done we have no substitute for our best spring beauties, and where space can be had it is a good plan to plant bold masses of bedding plants in front of the shrubs, which then receive and impart beauty to the flowers by the force of contrast and the relief and softness which the varied shades of green foliage impart to the bright colours.

Not unfrequently a fringe of hardy perennials is found in shrubberies, especially in old ones where Laurel, Box, Yew, and Holly predominate; but I do not like an unbroken flower border in such a position, for although we have nothing approaching the peerless beauty of the Rhododendron among late-flowering shrubs, yet



Fig. 13.—*Odontoglossum Pescatorei Veitchii*. (See page 107.)

there are many possessing attractive features—so attractive that by the exercise of skill and good taste shrub groups may be pleasant throughout the year, offering us some special attraction peculiar to each season, and thus adding that charm of variety which every feature of a garden should possess in addition to intrinsic worth and beauty. Let it not, however, be supposed that the writer would rigorously exclude perennials from shrubberies, for there are a select few quite equal in effect to many of our choicest shrubs. Take for example *Spiraea palmata*, which in good soil so quickly makes large clumps, with an annual growth 4 to 5 feet high and quite as much in diameter; what shrub can surpass it when its lovely pink flowers are at their best? Or the earlier-flowering *Dielytra spectabilis*, which assumes even larger dimensions under favourable conditions? Then, too, there are hardy *Fuchsias*, objects of exceeding beauty, sometimes to be seen in specially favoured gardens from 6 to 10 feet high; *Pæonias*, *Phloxes*, the tall *Euothenas*, many *Lilies*, the white Japanese *Anemone*, and such favourites as the stately *Bocconia cordata*, the *Acanthuses*, *Centaurea aurea*, *Delphinium cardinale*, *Dietamnus Fraxinella*, the curious *Eremurus robustus*, *Ferula communis*, *Melanthus major*, the Himalayan Poppy (*Meeonopsis nepalensis*), and *Papaver orientalis*, which is so striking that I have often known much admiration called forth at the sight of one of its huge scarlet flowers, with a couple of its curious flower buds cut off and put in a vase. Planted at intervals singly in nooks reserved for them along the margin of the shrubs, such stately plants are far more ornamental than they ever can be in a crowded perennial border, standing alone as they then do, distinct from and yet in perfect harmony with their surroundings.

Returning now to the shrubs, let us see what comparison seasonable sections bear to each other, marking the best as we go along.

Spring.—Here of course Rhododendrons take precedence of all

others. In making selections care should be taken not only to secure favourite colours and fine flowers, but also good successive flowers in order to prolong the season. Thus every garden should possess at least one specimen of such early-flowering varieties as *Broughtonianum*, all the varieties of *Nobleanum*, *Cunningham's White*, sometimes called *caucasicum album*, *altacrerense*, and *Victoria*. Of intermediate sorts to be regarded as indispensable there are *Mrs. John Clutton*, *Lady Eleanor Cathcart*, *Barelayanum*, *Alarm*, *Brayanum*, *Lady Lopes*, *geranioides*, *atro-sanguineum*, *William Downing*; and of later kinds *Star of Ascot*, *John Spencer*, and *John Waterer*, the opening flowers of which afford a sure indication that the end of "Rhododendron time" is drawing nigh. Upon the lovely *Azaleas* I need not dwell further than to plead for space for a group of *A. pontica*, so deliciously fragrant as it is; to claim a sheltered nook for a few varieties of the early-flowering *mollis*; to once more note the singular beauty of *A. amoena* as single specimens in rock beds, and that mixed groups are here found to alternate admirably with others consisting entirely of *Kalmia latifolia*, the evergreen habit of the *Kalmia* atoning somewhat for the bareness of the deciduous *Azaleas* in winter. All the other *Kalmias* are found to answer best mixed with *Andromedas*, *Gaultherias*, *Menziesias*, and other dwarf shrubs. Next among our best spring shrubs come *Berberis Darwinii*, *B. duleis*, *B. stenophylla*, *B. japonica*, and *Mahonia aquifolia*; *Eseallonia maerantha* more beautiful this year than I have ever before seen it; *Garrya elliptica*; double *Gorse*, good only for five or six years; white and yellow *Broom*, *Cratægus pink* and white, *Laburnum*, which, with *Lilac*, *Guelder Rose*, *Weigela*, and *Syringa*, link together spring and early summer. Let me here note the great beauty of the large-flowered *Syringa* (*Philadelphus grandiflorus*), which answers well both in sunshine and partial shade, and is planted in both positions to prolong its flowering season; *Forsythia viridissima*, a mass of golden flowers this year; *Buddlea globosa*, *Magnolia stellata*, *Ribes*, *Deutzia gracilis*, *Xanthoceras sorbifolium*, *Siberian Crab*, and *Tree Pæonias*.

Summer.—Roses trained to pillars, especially *Gloire de Dijon*, tell well among shrubs, and the single Japanese Rose takes high rank among shrubs of handsome bushy growth. *Deutzia crenata flore-pleno* is one of our best early summer beauties. The shrubby *Spiræas*, too, are more valuable from the succession of bloom which one variety after another affords. Two or three fine specimens of *S. callosa alba* are now very full of bloom; but the most beautiful white-flowered variety is undoubtedly *S. ariæfolia*, just now passing out of bloom. When thoroughly established it throws up sturdy shoots 7 or 8 feet high, upon which its large soft white feathery plumes show to great advantage. The pink-spiked species *S. Lindleyana* and *S. Nobleana* have still many unopened flowers; so, too, has the lovely *S. Douglasii*. Then there are the varieties of *Hibiscus syriacus*; the yellow Spanish Broom; *Ligustrum japonicum*, queen of all the Privets; *Desfontainia spinosa*, a veritable gem; *Gum Cistus*, with its chaste yet fleeting beauty; *Veronica salicifolia*, with lovely pink flower spikes; *Æsculus laciniatus*, not half so much grown as it deserves to be; *Desmodium penduliflorum*, which, like all Japanese shrubs, has peculiar and distinct characters as well as much beauty. *Hydrangea hortensis* and *H. paniculata grandiflora*, which, although highly valued for its handsome clusters of white flowers, has not answered my expectations, for the first flowers that I saw of it were grown in Cornwall, and all of them had red blotches; but I have not seen it so clearly marked since. *Rubus fruticosus albus-pleno*, *R. fruticosus roseo-pleno*, and *R. laciniatus*, the first two for their charming double flowers, and the last for both flowers and fruit. *Kerria japonica*, *Leyeesteria formosa*, *Potentilla fruticosa*, *Diplopappus chrysophyllus*, somewhat dull-looking now it is in bloom, but valuable for its yellow stems and leaves; nor must I omit the wild Olive (*Rhus Cotinus*), that is so beautiful with its soft purple flower plumes. It will thus be seen that we have a considerable number of really good summer-flowering shrubs, which are turned to good account and form an admirable fringe to bold masses of Rhododendrons.

Autumn and winter derive brightness, the one from changing foliage such as we have in the *Liquidamber* and *Ampelopsis japonica* and the silvery plumes of *Pampas Grass*; and the other from the bright-hued berries of the *Holly*, *Arbutus*, *Skimmia*, and *Benthamia*, where it is found to answer. Our only good winter-flowering shrub is *Laurustinus*, but this will not answer in low-lying damp situations.—EDWARD LUCKHURST.

WEST OF SCOTLAND ROSARIAN SOCIETY.

THERE is no place, even in more southern counties, where there is greater favour shown in the culture and exhibition of the Rose, or more thoroughly carried out, than in Helensburgh, a favourite bath-

ing place on the Clyde. It has always a great interest for me, not only because of the hearty and cordial welcome which always greets me, but also because it does my judging credit, of which I shall have as usual more to say by-and-by. The Exhibition was held, as it has been of late years, in a tent in Westwood Park, but here as elsewhere the cry is for some covered hall, where neither the Roses nor the company are exposed to the vicissitudes of our varying climate. The flowers were arranged on the long stages provided by the Society, and each exhibitor has to take his Roses out of their own stand and place them on these stages. All thus are doubtless on the same level; and although the appearance is certainly marred by the yellow character of the moss, there has been a very considerable advance amongst the local exhibitors; and although some stands of inferior quality were shown there was a very decided general advance, while the Messrs. Dickson of Belfast and Newtownards showed such admirable stands that we regret very much they cannot enter into competition with some of our noted English growers, for I am quite sure that they would be victorious in many a contest if they did so; but it is a "far cry" to Belfast, and it would hardly be possible to get the Roses sufficiently fresh to enable them fairly to compete. Pansies were well shown also, but of course the great interest was centred in the Roses. I was much amused at the rapid manner in which the Roses were sold by auction after the Show was over. It was not only the proverbial "saxpence" that disappeared, but half-crowns for bouquets, and altogether a sum of upwards of £5 was added to the funds by this novel method. I was amused at the wit and humour shown by the auctioneer and appreciated by the crowd, evidently disproving Sydney Smith's disparaging remarks on the difficulty of getting a Scotchman to understand a joke.—D., Deal.



WE are requested to state that the PELARGONIUM SOCIETY'S ANNUAL MEETING will be held in the autumn, and the members will have timely notice of the date.

— AN EXHIBITION OF PINKS, we are informed, is in process of organisation for next season. Persons who are willing to subscribe 5s. each to form a prize fund are desired to communicate with Mr. Shirley Hibberd, who has taken charge of the matter for the present.

— A BRISTOL correspondent sends us the following note relative to a GREAT HAILSTORM NEAR BRISTOL:—"On the evening of the 25th ult. this neighbourhood was visited by one of the most extraordinary hailstorms ever witnessed, the ground being covered with hail, which remained in many places the whole of the night, for on Wednesday morning we measured some where it had rolled into a heap 5½ inches deep at seven o'clock. We have not a flower left outside, and I fear tender plants such as Alternantheras and Coleus are permanently injured, as they were covered up for some time in hailstones, and now they have the appearance of having been frozen. Everything is more or less damaged, Beet especially so."

— MR. J. SMYTHE, the well-known horticultural sundriesman of Drury Lane, has sent us blooms of his new SEEDLING CARNATION MARY MORRIS, grown in his garden at Forst Hill. Mary Morris is a self of a rich glowing rose colour faintly suffused with salmon, the flowers being large and full. As the variety is a good grower and free bloomer—Mr. Smythe having cut sixty-eight blooms from one plant—it will prove valuable for garden decoration and for affording a supply of cut flowers of a colour that few can fail to appreciate. Mary Morris was commended by the Judges at the National Carnation Show last week, presumably as a decorative variety, and beyond doubt large masses of it would have an excellent effect in gardens.

— RELATIVE to the note on page 80 on raising STRAWBERRIES IN FRAMES, our correspondent, "A NORTHERN GARDENER," writes:—"If 'SINGLE-HANDED' would read more attentively his criticism would be more effectual. When the

plants are raised in frames I said, 'In dry localities there is risk of the plants being injured by remaining crowded in the nursery beds too long, or removing them in unsuitable weather.' I never suggested they could not be established in frames; the question was one of removal. I have been in a dilemma more than once—the plants spoiled if they remained, and were injured if removed, when the sky was cloudless for weeks and the soil like a bed of hot ashes. I wrote from experience, which it is quite evident your correspondent lacks under the same conditions. The plan he advocates is an excellent one when planting can be done at the proper time, but it has failed with me, as it must fail, during a hot and dry season."

— A CORRESPONDENT writes as follows respecting SINGLE DAHLIAS—"Lovers of elegant flowers who have commenced the cultivation of single Dahlias will not regret the step. Plentiful as flowers are just now, there is not another that could be named as a substitute for these, and those who have not yet indulged in single Dahlias have still an untasted pleasure in store. Ours were raised from seed sown in February in heat, and the seedlings afterwards nursed on in pots, and finally planted out at the end of May, and now, July 21st, they are in full bloom. It will thus be seen that they may be very easily obtained. Those who have no means for forwarding seedlings in spring can buy half a dozen, or as many more as they have room for, and if planted on fairly good soil and treated like other Dahlias a rich reward will be reaped."

— THE same writer also sends the following upon WILD ROSES—"Some of our wild flowers are unsurpassed for beauty and elegance, and first among them are wild Roses. They are just as worthy of cultivation as are single Dahlias, and for home decoration there is hardly anything to equal them. All round my district there are wild Roses in plenty, yet in half a dozen odd nooks and corners I have planted wild Roses, and I use their blooms when they are in flower for dinner-table decoration, and find employers and visitors equally delighted. They would pass these very blooms on the roadside; but whenever, instead of the ordinary garden flowers, wild Roses are used everybody is delighted beyond measure. Just let those who have hitherto despised such do so no longer, but put in a plant or two and see if the labour is misspent."

— WE have received an intimation of the death of DR. CARL EDUARD LUCAS, Royal Garden Inspector, Proprietor, and Director of the Pomological Institute of Reutlingen in Bavaria. He died on the morning of the 24th July, between nine and ten o'clock. Dr. Lucas has been long known throughout Germany as an accomplished pomologist and an indefatigable worker in the pursuit of pomology. His labours have been incessant, and are fully recorded in the eight volumes of the *Illustriertes Handbuch der Obstkunde*, to which he was a contributor under the editorship of Oberdieck. In conjunction with the same author he produced the *Pomologische Monatshefte*, which appeared for twelve years. Of his independent works the most important are *Auswahlverthroller Obstsorten*, *Pomologische Tafeln zum Bestimmen der Obstsorten*. Besides these there are a score of smaller treatises on various pomological subjects, and his last work was *Enleitung in das Studium der Pomologie*.

— GARDENING APPOINTMENT.—Mr. Robert Parker, late gardener to Mrs. Bertwhistle, Rockwood, Skipton, succeeds Mr. Brown as head gardener to C. F. Taylor, Esq., Winsley, Ripley.

— "F. W. B." observes in the last issue of the "Gardener" that "the question of PRUNING ORCHIDS is as yet far from settled, and much depends on the way in which it is performed. We often differ in opinion from each other simply because our local surroundings are different, and not so much because we really think

a certain practice to be right or wrong in a general way. I knew an old exhibitor of stove and greenhouse plants in Yorkshire who grew *Dendrobium nobile* better than I ever saw it elsewhere, and he always cut away the old pseudo-bulbs—*i.e.*, some of the three and all the four-year-old ones—when he dressed up his plants for the shows. We have all been brought up to the dogma that the old pseudo-bulbs of Orchids are reservoirs of nutriment—savings-banks, as it were, of superfluous sap. This may be true, wholly or in part, as the case may be. In a state of nature every provision is no doubt the actual outcome of absolute necessity, but what is necessary to a plant growing fully exposed to all the vicissitudes of nature may be very unnecessary when the plant is placed in artificial circumstances, and receives regular cultural attention so far as heat and moisture are concerned. If it be true that the young growths of Orchids draw on the old pseudo-bulbs during the early and rootless stages of their existence, as seems probable, it is also equally true that the shrivelled and rootless old bulbs plump themselves up only at the expense of the young growth, and mainly just at the time that it attains its full development. It must be self-evident that rootless old pseudo-bulbs have no power of acquiring anything from the compost."

— AT the Notts Agricultural Show we are informed that the MEADOW FOUNDRY COMPANY had a splendid collection of designs in double, ornamental, and single coil pipes and cases for heating halls, public rooms, &c., while the garden vases and pedestals were above the average in workmanship and design. The large fountain placed in the centre of the open square was much admired. A Portland tubular hot-water boiler capable of heating a mile of 4-inch piping, for heating public buildings, conservatories, &c., was inspected by many with curiosity, being the second boiler of its kind manufactured.

— FIRST-CLASS certificates were awarded for the following new varieties at the NATIONAL CARNATION AND PICOTEE SOCIETY'S SOUTHERN SHOW held at Kensington on the 25th ult., in addition to those noted in our report:—Carnations, Alfred Hudson, a scarlet bizarre of good form and rich colour; W. H. Hewitt (Douglas), a crimson bizarre sport from the rose-flake James Merryweather, a beautiful and finely coloured variety William Skirving (Gorton), a handsome pink and purple bizarre staged by Mr. Douglas, the blooms large and even.

— UNDER the heading of "Great Companies and Trading Firms," the nurseries of MESSRS. WILLIAM PAUL & SON of Waltham Cross are described in an entertainingly written article in Colburn's new monthly magazine for July (E. W. Allen, 4, Ave Maria Lane, London). The cross of Waltham which marks the spot where the body of Queen Eleanor rested is thus referred to—"Time, that insidious iconoclast, has dealt gently with this beautiful memorial of marital affection, for the regular features of the Queen are still distinct, and the tracery has suffered but slightly from six hundred years' ceaseless wooing of wind and rough weather." It is not necessary to cite anything about the nurseries, as they were described by a correspondent in our columns last week.

— A "CITY MAN," referring to the FINE CROP OF POTATOES mentioned on page 77 last week, observes:—"While the results achieved by 'B.' are excellent and his experience valuable, his prices for Potatoes are too high, as any quantity of Potatoes of undeniable quality can be purchased from costermongers' barrows in London and in greengrocers' shops for a halfpenny a pound. There must have been two profits at least obtained, and possibly three, before the last-named vendors made their trifle. First the grower's profit, next the salesman's (commission), then the merchant (purchasing by the ton from salesmen), and lastly the small retailers who purchase from the merchants. What in

such a case, when the latter can sell at the low price mentioned, could have been the original price that the cultivator obtained? Certainly not three farthings a pound."

— THE following is submitted as a characteristic example of American satirical humour:—"Those who have been pestered to death by the irrepressible DANDELION on their lawns may now take heart. The pest will pester them no more. Eastern markets have begun to utilise them for greens, so that gardeners cultivate them for sale. The plant having thus become useful the bugs will eat it off above ground, the grub will saw its roots in two, the sun will parch it to death, the rains will drown it out, the rain will thrash it to strips, and the boys will dig it out and steal it. Thus the Dandelion, which has been among the first of the weeds to coax its way into human favour in the spring by throwing out its golden blossom, will retire from the field and the lawn to the seclusion of the guarded greenhouse."

— MR. CLARK, The Gardens, Tedfold Lodge, Sussex, states that he obtained 1 lb. of WHITE ELEPHANT POTATOES from Messrs. Carter & Co. of High Holborn, and planted them in the spring, and although he had to lift the crop some time before growth ceased, as he wanted the ground urgently, yet the produce was 174 lbs. of very large tubers. White Elephant is a new American variety, and has the reputation of being highly productive, a great disease-resister, and a good keeper. Mr. Clark will in due time be able to speak of the quality of this variety, which he does not appear to have tested.

— "X." writes:—"Very showy just now in some herbaceous borders are the forms of *LYTHRUM SALICARIA*, especially *roseum* and *grandiflorum*, which are not unlike another common plant—the Narrow-leaved Willowherb (*Epilobium angustifolium*), and are equally free in flowering. The two varieties of *Loosestrife* named above have larger and more brightly coloured flowers than the type, and with me they are rather dwarfer than it. They succeed well in any moist situation, and their stems thickly clothed with rosy flowers have a very pleasing appearance. The *Epilobium*, also mentioned above, should not be despised because it is common, for a patch of it in a corner of the garden that would perhaps be otherwise unoccupied is very welcome."

— IN his report upon the trade and commerce of La Rochelle for the past year Mr. Vice-Consul Sadler draws attention to the havoc of the *PHYLLOXERA* in French vineyards. The phylloxera commenced its ravages in the Department of the Gard in 1863, and is believed to have been introduced into Europe by Vines imported from America. In 1881, 104,536 hectares of Vines, or 258,395 acres, were destroyed in France, against 37,000 hectares, or 91,450 acres, in 1880, and the malady has since made its appearance in five fresh arrondissements. The State is doing what it can to check the disease, and the proprietors are joining associations of mutual defence, but not much headway has been made as yet. Nothing can make up to the cultivators of the Vine for its loss. The land where Vines are destroyed is scarcely worth one-third of its former value, and could not easily be disposed of at any price. The depreciation in landed property due to the ravages of the phylloxera is already estimated at £12,000,000 in a single department.

— IN an interesting article by Mr. Grant Allen in *Nature* upon the COLOURS OF FLOWERS, many curious facts in regard to the changeability of colour are noticed. He says—

"All flowers, it would seem, were in their earliest form yellow, then some of them became white; after that a few of them grew to be red or purple; and, finally, a comparatively small number acquired various shades of lilac, mauve, violet, or blue. Some hints of a progressive law in the direction of a colour-change from yellow to blue are sometimes afforded us even by the successive stages of a single flower. For example, one of our common little English Forget-me-

nots, *Myosotis versicolor*, is pale yellow when it first opens, but as it grows older it becomes faintly pinkish, and ends by being blue like the others of its race. Now, this sort of colour-change is by no means uncommon, and in almost all known cases it is always in the same direction, from yellow or white, through pink, orange, or red, to purple or blue. The common Virginia Stock of our gardens (*Malcolmia*) often opens of a pale yellowish green, then becomes faintly pink; afterwards deepens into bright red, and fades away at last into mauve or blue. Fritz Müller noticed in South America a *Lantana*, which is yellow on its first day, orange on the second, and purple on the third. The whole family of *Boraginaceæ* begin by being pink, and end by being blue. In all these and many other cases the general direction of the changes is the same. They are usually set down as due to varying degrees of oxidation in the pigmentary matter."

SEEDLING CARNATIONS AND PICOTEES.

THE above are indispensable in all gardens where quantities of flowers are in daily request for cutting. No matter at what season of the year their blooms are produced, they are always welcome and more eagerly sought after than those of any other hardy plants, the Rose excepted. This is the case whether the plants are grown in pots and forced into bloom during winter and spring, or when flowering outside naturally. Beds filled with Carnations, either of one colour or a number of varieties together, are useful and attractive, and these plants when in flower have a gay appearance that would, independently of their fragrance, commend them to all. When planting them in beds or borders no better position can be chosen than amongst dwarf Roses. The latter should be planted sufficiently far apart that the Carnations or Picotees can be planted alternately with them. For example, a bed of Roses in three rows can have a row of Carnations planted on each side of the centre line of Roses. A bed of La France Roses with any dark-flowered Carnation will be charming through the whole season.

I do not think it is generally known that these plants thrive admirably in the smoky neighbourhood of towns. Here they grow luxuriantly, especially seedlings, although the air is contaminated with chemical vapours. Whatever florists may urge in favour of named varieties, they are not so useful as seedlings. The beauty of form and markings of many of the flowers of the named kinds are all that can be desired, but many of them are bad growers and only produce a few flowers, which are soon over. Many named kinds do not produce more than a dozen flowers from a single plant, which are all past in a few weeks, especially if the weather is hot and dry. Such Carnations and Picotees are but little use for the gardeners who require a continuous supply either for packing or filling vases at home. Perpetual seedlings of both Carnations and Picotees should be grown for this purpose; they are robust in habit, and profuse and continuous flowerers; in fact many of them commence flowering before the named kinds, and produce abundance until stopped by frost. I have at the present time plants with over two hundred flowers and buds upon them, and these from single plants layered in August last. These seedlings do not only produce a few flowering stems from the centre early in the season, but continue to produce in rapid succession flowering shoots from the base. Some of these attain a height of 3 feet 6 inches to 4 feet in length, and form strong lateral shoots nearly the whole of that length.

Last August I had layered a number of late-flowering shoots into 6-inch pots, the pots being plunged into the soil until the plants were well rooted, which were severed from the parents just before the approach of frost and placed under cover. Quantities of blooms were produced from these plants during the winter, and I intend to adopt this practice on a much larger scale, and do not doubt a succession of flowers will be produced through the whole winter and spring.

The present is a good time to sow seed for obtaining a stock, but the sooner it is done the better. If sowing is delayed until spring many of the plants raised will not flower the same season. This entails labour in carrying out the operation of layering before there is any chance of determining whether the plants will have single or double flowers; but when sown now, or better still if sown about the month of June, and established and wintered in 3-inch pots, and then the whole planted out in nursery beds in early spring, they will flower towards the end of July, the best can then be layered and the worthless ones thrown away. If the seedling plants are moderately strong from seed sown during the month of June I do not hesitate to plant them out in early autumn, as these are perfectly hardy, and satisfactory results may be relied upon; but when sown late the young plants during winter should have the protection of a cold frame, or better still if they can have a position where they can grow slowly during the winter, for the greater progress they make the earlier they

will flower the following season. Some of the seedlings may have single flowers. The showiest of these make grand border plants; but I have always been fortunate, and always had a greater percentage of double than single flowers, and many of them of superior quality.

The seed should be sown in pans, using a light compost of loam, leaf soil, and sand. The seed must only be lightly covered and then well watered with a fine-rose can. The pan may be placed in heat and covered with glass until the seed germinates. It is a good plan to cover the glass with moss until the seedlings appear, when it must at once be removed and light and air gradually admitted to the young plants. The only object in raising them under glass or placing the seed in heat is to bring on the plants more rapidly than if the pans or boxes in which the seed is sown was placed in a shady place outside. Amateurs having neither greenhouses or frames may be very successful in adopting the latter method. If the glass is kept close over the plants after the seedlings appear they are liable to suffer from damp. When large enough the young plants should be potted singly in the sized pots already named, which is preferable to pricking them off into other pans or boxes. After potting, and as soon as root-action has fairly commenced, they should have a cooler position, where more ventilation can be given, which will prevent them drawing up weakly. When well hardened the young plants can be plunged outside or planted out, but if small at the approach of cold weather it is best to keep them in frames.

Those that have not raised seedling Carnations and Picotees for purposes of cutting, as well as the embellishment of beds and borders, and have hitherto relied upon named varieties, would not be disappointed with the result for the time and labour required in raising a stock of these useful plants from seed.—W. BARDNEY.

THE INFLUENCE OF SOIL IN MATURING CROPS.

It will be found that an abundance of manure will bring forward young Turnips, Carrots, Radishes, Cabbages, and weakly-growing but very early Potatoes, and many other vegetables; but (and this is especially true in cold, wet, dull seasons) it has exactly the opposite effect on Peas, Cauliflowers, Strawberries, &c. Here the season has been such as is favourable to a great development of leaf, and the consequence is that Strawberries in thoroughly good soil have made such growth as has had the effect of hiding the enormous crops of fruit under a leafy screen, where the slugs can hide and feast unseen, and where the shade is such as causes the fruit to ripen very slowly indeed. None of our Strawberry plots are in really poor condition, but the poorest and oldest, though once far less promising, are much more satisfactory than are those younger and on better soil. Had the season been hot and dry the opposite would have been the case; but as it is, our earliest and best fruit have come from the plots where the soil is thinnest and the plants weakest.

A fortnight before we had any Strawberries a market grower in the neighbourhood had plenty, and the variety was the same as our own earliest—namely, Vicomtesse Hericart de Thury; but his were in poor soil, and the plants were making little growth—the fruit was being forwarded by starvation.

It is the same with Peas. The earliest Peas here were from a row sown on rather poor soil. From this row two or three dishes were obtained before as many pods were filled on the bulk of the other batch, although the later ones were in a more favourable situation than the others. The only difference that could cause such a result was the extra manuring the later rows received, for they were sown in land liberally manured and trenched for Strawberries, which we expect to plant immediately.

With our Cauliflowers it is the same. Even yet the Dwarf Erfurts that were kept over winter are hardly exhausted, but they are on the same soil as the Peas. Even now spring-sown Eelipse is plentiful, but the heads are only turning in from plants that from some cause or another have not grown very well. The stronger the plants the later is the produce, but in all cases is finer. The late heads of the Erfurt Cauliflower are quite out of character, they are so large. In the case of the Peas the later crops are also very heavy.

Onions on moderately rich soil are growing fairly and promise a return of useful bulbs; those on very rich soil are growing fast, but should the weather not become brighter, warmer, and drier, they will be so late as to be useless. It really is a question of earliness *v.* lateness, for a quantity that were pushed forward in spring and transplanted in May, although growing strongly, are for the most part bulbing satisfactorily, some being now (July 21st) 4 inches in diameter. But for the artificial forwarding it is doubtful if, in such a season, they would have bulbed at all; as

it is it will take them some time to mature. The others not so forwarded will be too late; those forwarded by starvation will also be in time.

To some extent a knowledge of these facts may help us, still it is so much a question of climate we hardly know when preparing the soil what to do. I prepared for a hot dry summer, for till now such, in my experience, has always followed a mild winter. The consequence is most of my crops, Peas especially, are so strong that though I grow only medium sorts I can hardly keep them up. Outdoor Tomatoes are just the same; they grow strongly but the produce is very late. I suppose everyone knows that poverty causes precocity in Tomatoes.

Now, if someone could tell me a year before the event what the weather was to be I would know how to act. Even as it is the knowledge gained will not be lost, and these remarks are penned in the hope of setting your readers thinking, and may be they will profit too. Neither mulching nor liquid manure is needed this year, except in a few instances, such as for giving Cauliflowers a start before they take on a stunted habit and "button." In ordinary years these practices will make amends for soil not very rich to commence with, and help to maintain a growth that threatens to be too precocious.—N. B.

ODONTOGLOSSUMS.

(Continued from page 60.)

IN so large a genus as that now under consideration it would be unnecessary to give descriptive notes of all the species in cultivation, though the majority possess attractions that well entitle them to notice. In few, however, besides the collections at very large private establishments, at nurseries where Orchids constitute a speciality, and in some botanic gardens, will a large number of species be found, and there is an increasing tendency to grow a number of plants each of a few really useful and beautiful species in preference to one or two specimens of a great many distinct forms. In a strictly practical point of view—that is to say, where a really imposing display is required at one time, and where Orchid flowers are in demand for decorative purposes, this plan is an excellent one, particularly if the accommodation for such as need different treatment is much limited.

Resuming the review of the chief species, one that now deserves notice is

O. Pescatorei.—A charming New Grenadan Orchid, which when in good condition is surpassed by few members of the genus. This is especially the case with some of the best varieties now in cultivation, which are greatly superior to the older type in the form, size, and colour of the flowers. Undoubtedly, however, that of which a flower is represented in fig. 18, p. 103—viz., *O. Pescatorei*



Fig. 19.—*Odontoglossum Cervantesi decorum*.

Veitchii, is the finest that has yet been introduced, and the fact that certificates have been awarded for it by the Royal Horticultural and Botanic Societies during the present year is a good indication of its distinctness and merits. In the ordinary forms the sepals and petals are white with a tinge of rose, the lip being white with rose and yellow, but in the one now being noticed the flowers are of beautiful form, the sepals and petals broad and heavily barred with rich purple, presenting quite a unique appearance in comparison with the other forms of this species. It was

introduced by Messrs. J. Veitch & Sons of Chelsea, who first exhibited it at Kensington on March 28th of the present year.

O. Cervantesi.—A Mexican species of dwarf habit that thrives admirably in small pans or shallow pots suspended from the roof of the cool house, where it blooms freely in spring and early summer. Like so many other Orchids several varieties have now been obtained that greatly surpass the old forms, and in a gardener's view the difference between a poor form and such a superb variety as *O. Cervantesi decorum* is greater than exists between many species as far as external form is concerned. The last-named is a very handsome variety, and as the accompanying woodcut (fig. 19) shows it is most peculiarly but prettily marked. The sepals and petals are white, of semi-transparent substance,



Fig. 20.—*Odontoglossum Halli nigrum*.

upon which the concentric lines and bars of rosy purple or deep crimson stand out most distinctly. The margins of the petals are usually slightly wavy, and this adds rather to the pleasing appearance of the flowers. The bloom represented was obtained from Mr. R. Warner's collection at Chelmsford, and though not so large as some others it was specially remarkable for the rich colouring at the lower part of the floral divisions.

O. Halli.—Quite different from the last is *O. Halli*, which forms with a few others, such as *O. luteo-purpureum*, a distinct section of the genus in a horticultural point of view. Its long racemes of large flowers render it very prominent in a mixed collection, and the dark-coloured varieties are especially remarkable when arranged with the lighter-tinted *Odontoglossums*. Early in the present summer, when Mr. W. Bull's collection of cool Orchids at Chelsea was in good condition, the *Odontoglossums*, and particularly some very dark forms of *O. Halli*, were very noticeable. Of the latter the darkest by far was that appropriately named *O. Halli nigrum*, of which a flower is represented in fig. 20. This is an extremely handsome Orchid of bold appearance, the racemes long and the flowers large. The petals have a buff yellow ground being heavily spotted with dark reddish brown almost black, the sepals are brownish towards the upper half, and marked similarly to the petals at the base. The lip has somewhat of purple in the spots, the ground being yellowish, inclining to white at the base; it is deeply but neatly fringed, and the wavy margins of the sepals and petals are also very pleasing.—L. C.

NEWCASTLE FLOWER SHOW.

THE Durham, Northumberland, and Newcastle-upon-Tyne Incorporated Botanical and Horticultural Society held their annual Exhibition on Wednesday, Thursday, and Friday the 26th, 27th, and 28th of July, in the Leazes Park, Newcastle-on-Tyne. This is one of the oldest societies in England, and in the last few years has been im-

proved so as to rank among one of the best also. It is unnecessary to mention the suitability of Leazes Park for an exhibition of this kind, its commanding view of the Tyne and the vale of the Derwent. The exhibits were staged in a series of tents arranged ridge-and-furrow fashion, with one central division, and covered an area of 24,700 square feet. The entries in some classes were not as numerous as in former years, but the exhibits were generally superior. Many of the prizes went to local exhibitors, Mr. Watson, Tanfield, gaining first for six stove and greenhouse plants. The Darlington contingent of exhibitors was strong, showed well, and generally victoriously. The first day was excellent for weather, the second bad, and the third good; but the receipts are reported to be good, which we hope will help the Society to hold their autumnal exhibition another year.

Referring now to the classes, we will give the results of the competition. In the Division A, open to all, the Society offered £26, apportioned in prizes of £12, £8, £4, and £2, in the class for eight plants in bloom; only three competitors staged. Mr. Letts, gardener to the Earl of Zetland, Marske-by-the-Sea, was easily first; his plants were fresh, well flowered. He had an *Anthurium Schertzerianum* over 5 feet in diameter with one hundred flowers, the spathe of which were 5 inches long; *Phœnocomma prolifera* was over 5 feet through, fine in shape, and profusely flowered; *Erica ampullacea*, *Statice profusa*, *Erica oblata*, *Ixora Williamsii*, and *Dipladenia amabilis*. All possessed more than average merit. Mr. Adams, Swalwell, was second with much smaller plants, his best being *Phœnocomma prolifera* Barnesi, a good *Erica Bothwelliana*, and a *Dracophyllum gracile*. Mr. Noble, gardener to Theo. Fry, Esq., Woodburn, Darlington, was third.

For eight foliage plants in this section the Society offered £18. Mr. Hammond, gardener to Sir Wilfrid Lawson, Brayton Hall, Carlisle, was first with a fine collection, including *Latania borbonica* 10 feet high, *Croton pictus* 9 feet high, *Phoenix rupicola*, *Encephalartos villosus*, *Dasylium glaucum*, and others. Mr. Noble was second with good examples of *Stevensonia grandifolia*, *Kentia Fosteriana*, *Cycas revoluta*, and *Dasylium serratifolia*.

The Society offered £20 for groups of miscellaneous plants 20 feet by 10 feet, arranged for effect. This brought four competitors. It was one of the most striking and important features of the Show, and helped to make up for the deficiency of the table decorations. Mr. McIntyre, gardener to Mrs. Gurney Pease, Woodside, Darlington, was first with a well-arranged group, comprising new *Anthuriums*, *Crotons*, and *Begonias*, a background of tall plants, all freely and tastefully arranged, being suitably toned with *Ferns* and *Lycopods*. Mr. Hammond was second also with a tasteful group, in which *Acalyphas* were artistically encircled with *Ferns*. This was a really superb arrangement, and close in merit to the preceding. Messrs. Clark Brothers, Carlisle, were third; and Mr. Noble fourth, both arrangements being good.

For six *Ferns* Mr. Noble was first with a good *Davallia Mooreana*, *Gleichenia Mendeli*, *G. Speluncæ*, and *Asplenium Belangeri*. Mr. Hammond was second, and Mr. Methven third. In the corresponding B Division, for gentlemen's gardeners only, Mr. Noble was also first with a corresponding lot of *Ferns*; Mr. Bullock, gardener to Charles Wilson, Esq., Shotley Bridge, being second, and Mr. Watson, Tanfield Hall, third. For twelve hardy *Ferns* in the A division Mr. Bullock was first, followed by Mr. Saunders. The former had fine examples of *Athyrium Filix-femina*, *Hymenophyllum unilaterale*, *Scolopendrium bimarginatum cordatum*, and *Athyrium Filix-femina crispum*.

For three *Crotons* Mr. McIntyre was first with fine coloured examples of *Majesticus*, *Queen Victoria*, and *Andreanus*, all well coloured. For four *Ericas* Mr. Letts was first with good plants of *Erica æmula*, *coronata*, *tricolor* Wilsoni, and *tricolor elegans*; Mr. Methven being second. In the division B for six foliage plants Mr. Letts was deservedly first with a fine *Chamerops humilis*, *Dasylium acrotrichum*, *Dion edule*, and *Croton Johannis* well coloured; Mr. Hammond was second with a good *Croton Disraeli*, *Macrozamia Fraseri*, *Bonaparte juncea*, and *Yucca filamentosa*. In this division the entries in the class for six plants in bloom were excellent. Mr. Watson, Tanfield Hall, was awarded the first prize for a handsome *Stephanotis floribunda*, *Allamanda Wardleyana*, and *A. nobilis*, very fine; *Clerodendron Balfourianum*, and *Ixora Williamsii*. Mr. Adams was second with fresh examples of *Bougainvillea glabra*, *Allamanda Wardleyana*, *Statice profusa*, and *Clerodendron Balfourianum*. Mr. Methven was third with fine plants in very satisfactory condition. These formed one of the most important features of the Show.

Cut Flowers.—The epergnes, hand and bridal bouquets, and button-holes were not so numerous as in previous years. The table decorations were greatly missed in this department. In the open class for an epergne of cut flowers Mr. T. Rutherford, Durham, was first with a neatly arranged Marsh glass, the top containing *Everlasting Flowers*, *Oncidium flexuosum*, *Gloxinias*, *Oleanders*, *Stephanotis*, and *Eucharis*. The base contained *Anthuriums*, *Allamandas*, and *Ixoras* fringed with *Davallia Mooreana*. In the corresponding class for gardeners Mr. Baynes, Sunderland, was first. The same exhibitor also took first for bridal and hand bouquets. Mr. Whiting, gardener to E. Walker, Esq., Shot Tower, Newcastle, was first with table plants. For stove and greenhouse cut flowers Mr. McIndoe showed a very fine collection, including spikes of *Cypripedium Lowii*, *Allamanda Hendersonii*, *Anthurium Andreanum*, *Stephanotis floribunda*, *Odontoglossum Roezlii*, and several *Ericas*. Mr. Black, gardener to Misses Pease, Southend,

Darlington, was second with beautiful examples of *Vanda suavis*, *Pancratium fragrans*, *Swainsonia grandiflora*, and *Dendrobium densiflorum*. In the B division Mr. Black also gained the chief prize with *Vanda suavis*, *Allamanda Hendersonii*, *Lapageria rosea*, *Ixora javanica*, and *Erica jubata rubra*. Herbaceous flowers were very good; Mr. Battersby, Hagg Hill, Blaydon, taking first with a good collection.

In the Division B, for twelve pots of alpine or rock plants, Mr. Larke, gardener to the Rev. W. Wheeler, Whitby, was the principal exhibitor, winning chief honours with *Armeria Pink Beauty*, *Achillea ageratoides*, *Geranium argenteum*, *C. turbinata pelviformis*, *Linaria pallida*, *Erigeron mucronatum*, and other plants. The same exhibitor was also first with bedding plants, which were very good. For twelve pots of hardy succulents Messrs. Clark Bros. were first with a good collection, including *Sempervivum Lagerii*, *S. hirtum*, and *S. arboreum variegatum*. For four Orchids Mr. George Hankin, Haviston, Stockton, was first, staging *Epidendrum nemorale*, *Dendrobium formosum*, *Cypripedium Parishii*, and *Odontoglossum Alexandræ* in fair condition. Mr. Noble was first in the corresponding class of Division B. For six Tuberous *Begonias* Mr. Noble was first with well-flowered plants, Mr. McIntyre second, and Mr. Garret, Newcastle, third.

The Society offer special prizes for window plants, which were well competed, *Fuchsias* being strongly represented. In the division C, which is open to amateurs only, some excellent plants were staged.

Roses.—These were extensively and well shown. For forty-eight Roses, twenty-four varieties, there were seven stands, Mr. B. R. Cant, Colchester, being first; Messrs. Mack & Son, Catterick Nurseries, York, were good seconds. The former had fine blooms of *Alfred Colomb*, *Duc d'Edinburgh*, *Souvenir d'Elise*, *Annie Wood*, *Marie Baumann*, *A. K. Williams*, *Countess of Rosebery*, *Innocente Pirola*, *Fisher Holmes*, *Comtesse de Paris*, *Baron Gonella*, *Exposition de Brie*. The best of Messrs. Mack's blooms were *Marie Baumann*, *Paul Neyron*, *Constantin Tretiakoff*, and the *Duke of Edinburgh*. Messrs. Paul and Son, Cheshunt, were third. For thirty-six blooms, not less than eighteen varieties, Mr. Whitwell, Barton Hall, Darlington, was first with fresh bright blooms of *Beauty of Waltham*, *Alfred Colomb*, *Comtesse de Serenye*, *Duchesse de Morny*, *Marie Baumann*, *Alfred Colomb*, *Thomas Mills*, *Dupuy Jamain*, *Elie Morel*, *John Stuart Mill*. These were very fine and attracted much admiration. Mr. B. R. Cant was second, and Messrs. Paul & Son third. Mr. Cant's stand contained excellent blooms of *Eugène Verdier*, *Duke of Teck*, *Madame Marie Finger*, and *Alfred K. Williams*. For twelve Tea Roses Mr. B. R. Cant took the first place with splendid blooms, including *Madame Hippolyte Jamain*, *Niphetos*, *Souvenir d'un Ami*, and *Souvenir d'Elise*. Mr. B. R. Cant also took first for twelve blooms of any variety with *Marie Baumann*. For twelve yellow Roses Messrs. Paul & Son were first with *Bouquet d'Or*. This Rose was much admired, it has the habit of *Gloire de Dijon* with the colour of *Maréchal Niel*. In the other classes, Messrs. Burrell, Heighington, and Laws, Ponteland, were the principal prizetakers.

Fruit.—The excellence of the fruit has been at all times remarkable at the Newcastle Show, and the last Exhibition was no exception to the rule, indeed many well-known exhibitors were not discontent with being placed third. For a collection of eight dishes £8 and the Royal Horticultural Society's bronze Knightian medal were offered. There were four competitors. Mr. Edmonds, gardener to His Grace the Duke of St. Albans, gained first prize with good bunches of *Muscat of Alexandria* and *Black Hamburg*. An excellent *Queen Pine* was shown nearly 4 lbs. in weight. *Royal George Peaches* and *Elruge Nectarines* were good, and a dish of *May Duke Cherries* was also noteworthy. Mr. McIndoe was second with *Duchess of Buccleuch* and *Madresfield Court Grapes*, *Pitmaston Orange Nectarines*, *Barrington Peaches*, *James Veitch Strawberries*, and *McIndoe's Scarlet-flesh Melon*. Mr. H. A. Mann, Grantham, was third; his best dishes were *Brown Turkey Figs*, *Muscat of Alexandria* and *Black Hamburg Grapes*. Mr. Jowsey, The Gardens, Ledbury Park, was fourth with even specimens. For four dishes of fruit, *Pines* excluded, Mr. Edmonds again secured the first prize with similar samples to those in the first-named collection. Mr. H. Johnson, gardener to H. Mumis, Esq., Castle Eden, was second with good *Black Hamburg Grapes*, *Melon*, and *Royal George Peaches*; Mr. A. Mackie being third. The best *Pine* was also shown by Mr. Edmonds, who had a good *Queen 4 lbs.* in weight. For bunches of *Grapes* Mr. Hammond was first with *Black Hamburg* and *Buckland Sweetwater Grapes*, the former very fine. Mr. E. Douglass followed with *Black Hamburgs* and *Muscat of Alexandria*, both very good; Mr. Larke, Whitby Park, being third. For two bunches of *Muscat* four lots were staged. Mr. Douglass was first with *Muscat of Alexandria*, well coloured and large in berry. For two bunches of white *Grapes* Mr. Hammond was first with *Buckland Sweetwater*, very large in berry; Mr. Black was second. There were five entries in this class. For two bunches of *Black Hamburg* Mr. Hammond was also first. For two bunches of *Black Grapes* Mr. Matthew Larke, gardener to Rev. M. Wheeler, Whitby Park, was first with *Madresfield Court*, Mr. Westcott following.

For green-fleshed and scarlet Melons Mr. Jenkins and Mr. Larke were first respectively with *William Tillery* and *Blenheim Orange*. Mr. Mackie had the best dish of *Peaches* (fine examples of *Noblesse*), Mr. Edmonds being second with *Chancellor*. Mr. McIntyre was third with *Exquisite*, which were also good. For the best *Nectarines*

Mr. W. Jenkins, gardener to W. Brodie Cochrane, Esq., Durham, was first with superior fruit unnamed; Mr. Black second with Elruge. Figs, Cherries, Strawberries, and Tomatoes were also well shown.

Miscellaneous.—Amongst the exhibits not in competition were a stand of Gladiolus and Dahlias, both of which were good, exhibited by Messrs. Harkness & Sons, Bedale, Yorkshire. These were generally admired, as in the north such fine blooms are rarely seen so early. Messrs. Thompson & Son, Newcastle, showed a fine stand of named Phloxes. Messrs. Stuart & Mein exhibited some fine Petunias. Messrs. Little & Ballantyne, Carlisle, contributed Roses. Mr. Sibbald, nurseryman, Bishop Auckland, had a fine stand of cut blooms of seedling Begonias. Mr. William Joseph Watson had a fine collection of Conifere and alpine plants. Messrs. Fell & Co., Hexham, Wentworth Nurseries, contributed a similar collection. The centre of attraction, however, was the group from Mr. B. S. Williams, Upper Holloway, London, which comprised a superb collection of new plants that were much admired by the visitors each day.

The Committee, along with the Secretary, were indefatigable in securing the comfort of visitors and exhibitors.

ERODIUMS (HERON'S BILLS).

THIS interesting group of plants belongs to the family Geraniaceae, and the common appellation of Heron's Bill is a precise rendering of the scientific name, which is not so frequently the case as one would wish. *Erodium* is taken from *erodios*, a heron, on account of the carpels when united to the column resembling the head and beak of that creature. Superficially there is much similarity between them and the Geraniums; they are rather different in the mode of growth in most instances, but still there is a great family likeness, and structurally there is much resemblance between the two genera. The distinctive characteristics of the *Erodiums* are the sterility of five out of the ten stamens, the hairiness of the inside of the carpel tails, and the spiral manner in which the latter coil up when separated from the column—a characteristic which is very striking in *E. romanum*. In Geraniums the carpel tails merely recurve when split away. They are numerous and very widely distributed, consisting of annual and perennial species, the majority of them perennial. Southern Europe and the countries bordering on each side of the Mediterranean are their headquarters. Three species are British, all of annual duration, while about the same number are found in Asiatic Russia, and one or two occur at the Cape which are not hardy in this country. They are mostly mountain plants, found at moderate elevations, and for the majority of them the rock garden is the only place to cultivate them successfully, about which, however, there is no difficulty. They are dwarf and compact growers, and by no means disposed to require a large amount of space until they are thoroughly established and two or three years old, by which time they will prove themselves worthy of it. *E. Manescavi* is an exception, as it is a much stronger grower than any of the others, but it is a plant worthy of a position of any extent, as it is very showy and perfectly hardy. They possess the advantage of not overrunning all their neighbours, as many alpinists are wont to do; but they are neat in appearance, evergreen, with elegant foliage and pretty flowers, enjoying a sunny and dry position but plenty of moisture during the growing season, although they do not suffer so quickly from drought as some plants. They are not particular as to soil, thriving in ordinary garden soil, a rich loamy sandy compost suiting them well. For the choicer kinds I have employed a mixture of loam, leaf soil, sand, and pieces of brick or limestone broken up finely, and found them do remarkably well in it, and any little trouble taken in this way with plants deserving it is not lost, but amply rewarded in the extra progress they make and their greater floriferousness.

They are increased in various ways. Some of them will divide, but this is not a very quick method of securing stock, as in the case of one group the rootstock is large and fleshy, and in the other there are woody stems or branches. To successfully divide the latter they should be planted deeply, so that the branches may root, when it can be accomplished without any fear of loss. Well-ripened cuttings inserted in pots placed in a cold frame, adding a liberal amount of coarse sand with the soil, will nearly all root, although they are rather slow. They are also easily raised from seed, which most of them produce in the southern counties, also in the neighbourhood of London. The seed may either be sown as soon as it ripens or be kept until the following spring, April being a good month to sow in pots, which may be placed in a cold frame or a cool greenhouse, keeping the soil fairly moist and have the pots well drained, and in three or four weeks the young plants will appear, which should be potted singly into small pots, when they can be handled and kept in them until they are well established, when they should be planted out, with the exception

of two or three plants, which should be kept in reserve in the event of loss from any cause. Especially is this commendable in the case of the rarer kinds. I should imagine they would readily increase by means of root-cuttings made from the principal roots, cut into lengths about an inch long; and although I have not tried this method, most likely the end of summer would be the best time to make the experiment, and those interested might try it in a small way. The cuttings should be dibbled in pots of sandy soil and placed in a cold frame.

The species enumerated below are all hardy, and there are other very pretty kinds in cultivation, which, however, will not endure our winters outside. I well remember seeing one such in the collection of the late Mr. Joad of Wimbledon Park under the name of *E. pelargonifolium*, which was very showy, flowering all the summer in one of his alpine houses, which had not any artificial heat. *E. mauritanicum*, which I have lost in ordinary winters, flourished remarkably in the same house. It has occurred to me that some of the brilliant colours of the Geraniums might be infused into some of the species by cross-breeding without the issue being too tender to withstand our winters, and I made a limited number of experiments in this direction, but through unfortunate circumstances they were not carried through. Perhaps some of our enthusiastic amateur cultivators will think the matter worthy of consideration.

E. absinthoides.—A very dwarf close-growing species, not more than 4 inches high, with very finely divided light green foliage, oblong in outline. Flowers in umbels on stalks raised slightly above the foliage, half to three-quarters of an inch across; the two upper petals rosy purple with blackish blotches, the lower ones rather light rosy purple distinctly veined. It flowers very freely through all the summer months from May. It is a native of Spain, and is apparently very scarce in cultivation. I have noticed it at Kew and one or two other places.

E. cheilanthifolium.—A recently introduced species from the mountains of Spain, with silvery grey foliage, very finely divided and Fern-like; taller-growing than the last. Flowers in umbels most freely produced, nearly an inch across, rather deeper in colour than those of the last, and but slightly blotched. This is a very rare and lovely species sent out by Froebel & Co. of Zurich, and it requires a dry position in light sandy soil. It is very free-flowering, continuing from June through all the summer months.

E. chrysanthum.—This is also an extremely scarce species, native of the mountains of Greece, and sent out about three years since by Froebel & Co. It grows about 6 inches high, with finely divided foliage of a silvery grey colour, the blade portion shorter and narrower than that of the last. Flowers in umbels borne on erect stalks just above the foliage, about 1 inch across, of a soft yellow colour; most distinct and charming. It requires the same treatment as the last, and to insure against the loss of such a gem it would be commendable to afford it some protection during the winter until a sufficient stock is secured, so that one or more plants might be risked. This applies to our colder counties. In the south it is quite hardy, and I have kept it near London. In flower from June to August.

E. hymenodes.—Quite distinct from all the species here described. It has a short gouty stem. Leaves simple, roundish-cordate, conspicuously lobed or serrated. Flowers in three to six-flowered umbels; the two upper petals light rose marked with crimson blotches, the lower ones lighter in colour, pale rose. The flowers measure half an inch or rather more across. It is a pretty little plant, resembling a miniature Pelargonium in appearance, and it thrives well in a sunny dry situation, flowering in July and August. It is a native of Northern Africa, and the same precaution is necessary as advised for the last.

E. Manescavi.—A much more robust-grown species, forming large tufts of pleasing green foliage a foot or more high. Leaves 9 to 12 inches long, alternately pinnate the greater portion of their length; leaflets deeply cut. Flowers numerous, in large umbels borne well above the foliage, 1 to 1½ inch across, of a bright purplish red colour freely veined with crimson. It is a most conspicuous plant when in flower, which is during the greater part of the summer—from June to October—very free, and is suited either for the embellishment of the rockery or the border. Plenty of space is necessary for it, but on the rockery it is a very telling plant, and in the border it makes a grand show. It produces seeds freely.

E. macrodennium (*E. glandulosum*).—A dwarf species, forming tufts of elegant finely divided foliage, similar to *E. absinthoides*, but the leaves are longer and not so freely divided as those of that species. Flower stems about 6 inches high, umbellate. Flowers three-quarters of an inch across; upper petals pale rose with black blotches, lower ones flesh-coloured and conspicuously

veined with purple. It flowers very freely during the summer months, forming a very pretty plant. Native of Spain.

E. romanum.—A pretty little species, resembling a miniature *E. Manescavi*. It grows in tufts. Leaves alternately pinnate; leaflets ovate-oblong, serrated, hairy. Peduncle 6 inches high, umbellate. Flowers half an inch or rather more in diameter, bright pink. This is a biennial species, rarely lasting more than two seasons; but it is easily raised from seed, and it readily establishes itself where introduced. It is a native of Italy, and Linnaeus, who first described it under the name of *Geranium romanum*, states that it was frequently found in the streets of Rome.

E. Reichardi (*E. chamædryoides*).—This is the dwarfiest of all the species here enumerated—not more than 2 to 3 inches high. Leaves roundish-cordate, variously lobed, half to three-quarters of an inch across, on very slender petioles. Flowers solitary, on slender stalks, very freely produced, half an inch across, white with radiating pink lines, with regular ovate petals. It thrives well on the rockery, forming compact tufts clinging close to the soil, flowering from June through the summer months. It is a native of the island of Minorea, from whence it was introduced into France by a gentleman named Reichard, in honour of whom Professor Murray named it. It is still a scarce plant, although it was cultivated by nurserymen in the neighbourhood of London a century back under the name of *Geranium acaule*, and a figure of it appears in the "Botanical Magazine," plate 18, under the name of *G. Reichardi*.—N.

REVIEW OF BOOK.

Report of the Proceedings of the Sussex Association for the Improvement of Agriculture. Season, 1881.

DOGMATISM in things scientific is not worth indulging in, for what is accepted as fact to-day is to-morrow shown to be fallacious. A year or two ago phosphates in manures were reckoned as of little or no value, and only acid-treated phosphates considered of use for plants. The Aberdeenshire experiments, conducted by an able and original chemist, Mr. Thomas Jamieson, dealt the first blow to the old theory—for it never was more than a theory, though universally accepted as proved fact, and acted on as such. The most recent work on the use and manufacture of artificial manures places dissolved phosphate at 4s. 6d., and undissolved mineral phosphate at 1s. Space will not permit us, in the present instance, to give even a short *résumé* of the Aberdeenshire experiments, but the one thing they proved above everything else was that undissolved phosphate is, for the crop to which it is applied, very nearly equal to dissolved, and in certain circumstances even quite equal, and not a whit behind over a rotation; while the continual use of phosphates treated with sulphuric acid had a tendency to produce disease, so that on the whole undissolved phosphate is preferable to dissolved, independent of its greater cheapness.

The report before us bears out in a wonderful manner the Aberdeenshire experiments. Some doubted, many denied that the Aberdeen experiments were conclusive; but here in Sussex, in a different climate, in different soils, the self-same answers are given to the same questions. Here, too, the manufacturing chemists have been shown to be in error and it has been shown that much money is being annually thrown away.

From the animated discussion lately conducted in these columns on the subject of artificial manures, we feel assured that our readers will be interested in a few of the main facts brought to the surface by the Sussex investigations. Indeed the matter is of national importance, as is shown by the following quotation:—"Of roots only, not taking into account the Wheat crop, there were about 71,000 acres in Sussex, and assuming that out of 30s. an acre one-third, or 10s. an acre, could be saved" (that is by the use of the cheaper or undissolved phosphate), "the saving to Sussex would be £35,000 annually." If this sum be multiplied by every such county in the kingdom the importance of the subject becomes evident at once.

One of the ascertained benefits resulting from the use of dissolved phosphate over undissolved is that it gives the plants the advantage of a quicker start where only chemical manures are used. Although this is the case it is shown in the report before us that dissolved phosphate has a tendency to fail towards the close of the season, while the undissolved holds on, and in the end gives equal and in some instances even superior results. For Turnips it was found that the manure that gave the best results was steamed bone powder and ground coprolite. At Preston the unmanured portion gave a crop of 9 tons 14 cwt. With pure dissolved bones costing 63s. 9d., 11 tons 4 cwt. resulted. Dissolved coprolite of equal value gave 9 tons 19 cwt.; undissolved

coprolite costing 33s. 9d. gave very nearly equal results, while a mixture of undissolved coprolite mixed with sulphate of lime gave 12 tons 8 cwt. The only two of these that can be compared are the first and the last, and under the old system of valuing the last would be considered next to useless, yet it proved superior.

In some instances the manures were tested along with a precautionary mixture. In such cases—and these give the most reliable results—the economy of using undissolved phosphates is brought out. To produce 14 tons 7 cwt. 100s. 1d. worth of manure was needed when dissolved coprolite was used, but when undissolved coprolite and bone flour was substituted—the mixture costing 57s. 9d.—the result was 14 tons 2 cwt., or very nearly the same.

The experiments show that artificial manures alone do not prove so suitable as when coupled with farmyard manure; that, valuable as they undoubtedly are, they are more to be relied on as auxiliaries than when employed by themselves, especially in seasons of drought. At Preston 25 tons of farmyard manure gave 15 tons 5 cwt. of Swedish Turnips, while 12½ gave 13 tons 17 cwt. Four portions were partially dressed with farmyard manure at the rate of 12½ tons, each further fertilised with different artificials. One plot, in addition to the farmyard manure, was treated with commercial dissolved bones, costing 45s., and the result was 14 tons 2 cwt. With ground coprolites, bone flour, and sulphate of lime, costing 28s. 8d., the result was 17 tons 5 cwt.—a very great difference in cost and in results. When to this latter mixture was added potash and magnesia 19 tons 16 cwt. was the result, proving that it is not always safe to assume that there is enough of these substances in even fertile soils; yet this is just what is almost always done. At the same time only a moderate allowance should be made to begin with, and cautiously increased, for too much may do mischief, as is proved by the fact that when more potash and magnesia was added to the above the produce was reduced 1 ton 10 cwt.—not a paying experiment.

All the soils operated on were poor, but that at Hassock's Gate was a sheer sand containing hardly any traces of any plant food after the black surface had been removed. On this startling and exceedingly instructive results were obtained—results at once proving the necessity of everything being added to some soils, and that phosphates by no means require to be rendered soluble. When no manure was applied the seeds germinated but made no progress whatever. When everything except phosphorus was given the result was hardly different, the produce hardly amounting to half a ton per acre. When phosphate—even as ground coprolite—was added the produce at once went up to 20 tons an acre: truly a wonderful result, and such as must convince everyone of the value of undissolved mineral phosphate. As Mr. Jamieson remarks, anyone who still persists in doubting, "the doubt must be an integral and inseparable part of his constitution. If those who have little or no difficulty in accepting the fact nevertheless lean to soluble phosphate as a superior form, they will be confirmed in their belief by these experiments, but they will see that the superiority is not one to lay much store by. If we were to venture on prediction, based on former experiments, we should say that as time passes the superiority will decrease and disappear, and that the flush at the outset will give place to disease in the end."

Some interesting facts are brought out by the experiments with potash salts, and one discovery has been made. With everything applied except potash the average weight from each plot was 38.59 lbs.; when the carbonate was applied only 36.50 was the result, thus confirming the former experiments of several chemists, and once more proving that the value put upon the carbonate of potash (as found in wood ashes) by gardeners to be not well founded. When potassic phosphate was added the result was 40.52 lbs.; potassic sulphate gave 40.69 lbs., or a little more than the phosphate; potassic nitrate gave 72.94 lbs., a great increase due to the presence of the nitric acid doubtless, but once more confirming the value of potassic nitrate (nitre). With potassic chloride the produce was nil—it killed the plants. The results of this particular set of experiments go to prove that Turnips on fertile soil do not want potash, for even when its presence could hardly be detected a good crop resulted even when it was withheld. As its addition on other plots gave an increase we may suppose that its use on particularly barren sands might be repaid.

The destructive effect of potassic chloride when applied to land deficient in organic remains was well illustrated on all the plots to which it was applied at Hassock's Gate. We will give the result in Mr. Jamieson's own words. "There is something wrong with No. 9," said the superintendent. "Is it not No. 12?" "No." "Nor No. 8?" "No, it's No. 9." I had expected No. 12 (no potash) to be backward; No. 8 (sulphate) turning out ill would not have surprised me. I had doubts about No. 6 (carbonate),

but that No. 9 should be so very backward—the chloride so generally favoured—myself no exception in the belief, was unaccountable.

"On arriving at the station the four chloride plots were visible at a distance; the plants were not only small and sickly but almost blanched or chlorinated, if I may use the term, for the well-known bleaching action of chlorine appeared evident. The two plots of Peas and two of Turnips were all suffering similarly, while the neighbouring plots were all healthy. . . . Talking the matter over while on a visit to Hassock's Gate with a member of the Aberdeenshire Association, Mr. Maedonald, factor on the Cluny estates, he suggested our repeating the experiment on the adjoining black sandy soil overlying the white sand in which the injurious action was experienced. Although the season was far advanced I carried this out. Six plots were opened up." It may be explained here that this black sand was the surface mould which had been removed in the case of the other experiments—black because of the decayed vegetable matter contained in it. For comparison some were treated with sulphate, others with chloride, others had no potash. The result at the end of the season was 4 tons 4 cwt. where no potash was applied, 5 tons 16 cwt. where the chloride was given, and 6 tons 5 cwt. where sulphate was given.

"To what was this difference due? The surface sand was derived from the sand below; the one was black the other white—in other words, the one contained decaying organic matter, the other none or only traces. Chemical analysis revealed no other difference, except that the food ingredients were rather less scarce."

From this Mr. Jamieson concludes that the chloride of potash may be used with safety on land rich in organic remains. He also considers that the ill effects may be neutralised by the employment of nitrate of soda. He says—"But we had heavy crops of healthy Turnips in the phosphate series on the white sand. What form of potash was used? It may be difficult to realise that it was the chloride." The nitrogen in this case was supplied by nitrate of soda, in the other by bone. Mr. Jamieson considers that in this case the soda seized the chlorine, forming common salt. We have seen Mr. Jamieson's conclusions termed hypothesis, but the facts are these:—When chloride of potash was applied to soil containing no organic matters the effect was disastrous; when organic matter was present it proved harmless. The same happened when along with the potassic chloride sodic nitrate was given.

The effect of potash on Peas was more marked than on Turnips. The plots treated with carbonate produced nearly one-third more of total produce, and fully a third more of Peas than the no-potash plots. The sulphate gave much more straw than the carbonate, but the yield in Peas was a fourth less; in this it was equal to the nitrate, but the latter produced still more straw. The phosphate gave about the same amount of straw as the sulphate, but the yield of Peas was actually less than when no potash salt at all was given, while, as before stated, the chloride gave nothing except instruction. It ought to be stated, however, that rooks spoilt a portion of the Peas, so that the experiments can hardly be considered reliable.

The space at our disposal will hardly allow of our culling more; but before closing the report we would like to call attention to the experiments with Oats. As in the case with certain of the Turnip plots, plots were dressed with a mixture containing every essential; while others, for comparison, had one kept out from each plot. The result proves so far that no one ingredient can be withheld without the plant thereby suffering. When all was withheld the produce over the series was 92 lbs., when nothing was withheld it amounted to 118 lbs. Curiously enough, when no phosphate was given the gross weight was 119 lbs., a fact hardly according with the ideas held of phosphates for cereals. The produce of the grain was rather less, however, confirming the opinion that phosphates fill the ear. The withholding, however, of potash, magnesia, and nitrogen seemed to be more felt by the plants than the withholding of phosphate. It would thus seem that nitrogen alone for cereals and phosphates alone for Turnips is a mistake.

The percentage of water in Turnips is often greatly altered by the kind of manure applied. Dissolved phosphates and nitrogen tend greatly to increase it, and it has been found that the increase caused by the employment of the latter is only water, the dry produce remaining the same. As solid Turnips keep much better than watery ones the use of nitrogen may thus prove a double loss, first the money spent, secondly the Turnips lost.

It has been asserted that chloride salts, magnesia especially, possess the power of producing watery Potatoes. Possibly they may have similar effects on Turnips. Mr. Jamieson seems just

the right man in the right place for ascertaining whether there be any truth in such an assertion, and of showing whether part of the effect attributed to dissolved phosphate and nitrogen may not be due to the chloride of potash. We would suggest the desirability of clearing up this point; for, having shown that we may now employ chloride of potash freely in rich garden soils without fear of mischief, it would be of much value to know what form of potash is most favourable not only for producing large crops of Potatoes but good tubers.

The main facts worth remembering are that 1 ton of ground eoprolite and bone flour, which cost about the same as a ton of superphosphate, is yet worth twice as much ultimately, though hardly so effective at the first growth. That superphosphate tends to produce disease. That chloride of potash is not quite safe on land very deficient in organic matter, but when that is present, or when used along with nitrate of soda, it may be used without fear (some say newly slaked lime makes it safe). That artificial manures may take the place of farmyard manure, but are better when used along with it. That on very poor soils all the essentials had better be supplied, thus confirming the opinions of the older chemists. That the best way to analyse soil is to experiment with manures (properly compounded) containing every essential, and to compare the results with other manures from which each one in turn is excluded. By this means we may soon find out whether we can dispense with phosphates, or potash, nitrogen, sulphur, magnesia, &c., in our own particular case, or whether we can dispense with any. In this way we may all become chemists and arrive at results not attainable in the laboratory. What we want now is not so much experiments there, but experiments in the field and the garden. We need hardly recommend agricultural experiments. The country is getting alive to their importance. What man, or body of men, with means sufficient will do for horticulture what our Jamiesons are doing for agriculture?



KITCHEN GARDEN.

Sow Cabbage seed for the main crop about the 6th to the 8th of August, suitable kinds being Ellam's Early Dwarf, Hill's Incomparable, and Nonpareil Improved, which are sufficiently large for private gardens; but if larger varieties are required for market Enfield Market and Battersea or Fulham are suitable. See that the earlier-sown Cabbage do not lack the needful attention in thinning and pricking-out as soon as they are fit, the time occupied in that operation being compensated for by the sturdier condition of the plants. Sowing Tripoli Onions should be attended to about the 10th of August, giving them rich soil well firmed in an open situation. Winter or Prickly Spinach should be attended to in sowing at the same date, giving this esteemed winter vegetable a distance of 18 inches between the rows, so that it can develope and be cleaned and gathered without injury.

Where Carrots are grown outside for use in spring now is the time to sow the seed, the Horn or Intermediate section being the best for this purpose, sowing in drills about 9 inches apart in a sheltered position where the soil is of a friable character, giving a good dressing of soot.

A breadth of Turnip seed should now be sown for winter and spring use, choosing an open situation and rich firm soil, suitable sorts being Veitch's Red Globe, Orange Jelly, and Chirk Castle Black Stone.

HARDY FRUIT GARDEN.

Apricots will in most localities be ripening, and will need to be protected against predatory vermin. Ants are generally the most troublesome, the remedy for which is drawing a line of gas tar at the base of the wall and renewing it when it becomes dry. Guano sprinkled over their nests and haunts will cause them to migrate. Wasps should be trapped in soda-water bottles about a third filled with sweetened beer, or hexagon netting may be suspended in front of the trees so as to exclude them. Plums of the early varieties, such as Early Prolific, Czar, July Green Gage, and Sultan, are ripening, and must also be protected from insects and small birds. The early

varieties of Peaches are advanced (Early Beatrice being ripe), and will need daily attention in gathering the ripening fruit, which should always be done before it falls from the trees, as they are benefited rather than otherwise by being allowed to lie for a day or two in the fruit room. In gathering the Apricots and Peaches great care should be exercised, as the slightest undue pressure is sufficient to injure the tender tissue, decay commencing and spreading rapidly. Gooseberries, Cherries, Raspberries, and all soft fruits should not be gathered until they are required. Morello Cherries must be protected from birds, and after hanging a time these Cherries form excellent table fruit, esteemed highly by some persons. In order to the preservation of the fruit to a late period a few bushes of Red Warrington or other late sorts of Gooseberry, together with Red and White Currants, should be covered with nets to preserve the fruit to a late period. Hexagon netting should be used in preference to mats. The latter ought never to be used, as they exclude air and light, engendering damp, which altogether very soon deteriorate the flavour of the fruit.

Mildew sometimes appears on the foliage of the Apricot, especially Royal, Blenheim, or Shipley, and should be combatted by thoroughly dusting the trees with flowers of sulphur. Grape Vines on walls will need similar attention, likewise Peaches and Nectarines. Continue to regulate the shoots of Vines, removing all superfluous growths, keeping them as close to the wall as possible without touching, and the berries on each bunch should be carefully thinned. Keep the leading shoots of wall-trained trees of all sorts carefully and closely nailed or tied in, and continue to remove or stop superfluous or foreright shoots, in order that the young wood retained may become thoroughly ripened.

FRUIT HOUSES.

Figs.—The fruit on the earliest-forced Fig trees in pots, if a second crop was taken, will be ripe; and as soon as the fruit is gathered the foliage should be thoroughly cleansed, dressing the trees if red spider be present with a solution of 4 ozs. of soft soap to a gallon of water. A free circulation of dry warm air will need to be maintained in the house until the wood is thoroughly ripened and the leaves give indications of maturity, when the trees may be placed outdoors in a warm situation and be plunged in ashes to the rim of the pots, which will induce their resting quickly; but when there is any doubt about the maturity of the wood they should be kept under glass and the house freely ventilated, lessening the supply of water, only giving a little to prevent the foliage becoming limp and falling prematurely. The second crop on early-forced planted-out trees will be ripening fast, and syringing must cease, and a circulation of dry warm air should be maintained constantly to secure well-coloured highly flavoured fruit. After the fruit is all gathered an occasional syringing may be given to cleanse the foliage of red spider and dust. Trees that ripened their first crop in June will now have a second crop swelling, and must be liberally supplied with liquid manure at the roots and have the mulching kept wet to encourage surface-rooting, syringing them daily to keep red spider in check.

Cherry House.—The roof-lights can now be removed to give the trees the benefit of full exposure, which is essential to arrest premature growth, to which Cherry trees, with other stone fruit subjected to early forcing year after year successively, are peculiarly liable. Although the leaves are not now particularly inviting to red spider its progress must be checked by a good washing occasionally, and if there be any black aphides destroy them by the prompt application of tobacco water or other insecticide. See that the border is sufficiently moist, for it must not be allowed to become dry, supplying liquid manure if the trees are not too vigorous. Trees in pots should be regularly attended to, and the foliage maintained in a healthy condition as long as possible.

Peaches and Nectarines.—The trees in the late succession houses should receive every attention as regards syringing to keep red spider in check, and watering the inside borders whenever they become dry. To assist the swelling of the fruit to a good size close the house early in the afternoon, with plenty of atmospheric moisture, and allow the temperature to rise to 85°, admitting a little air before nightfall, and ventilate early in the day to prevent the foliage being scorched. To assist in the perfect colouring and ripening of the fruit it should be

exposed as much as possible to the influence of the sun and air by removing some of the foliage; and where the fruit is on the under side of the trellis the shoots should be untied, and the fruit brought up to the light, being kept in position by laths placed across the wires. Tie and regulate the shoots, keeping the laterals closely pinched to one joint of growth.

FLOWER GARDEN.

Flower beds now require frequent attention to remove dead or decayed leaves and flowers. Seed pods of Pelargoniums, Verbenas, and indeed all kinds of bedding plants, should be removed immediately the petals fall, as the production of seed, besides giving the beds a shabby appearance, tends greatly to the exhaustion of the plant. Verbenas should be frequently examined and kept well thinned, so as to bring up fresh shoots and insure continuity of flowering. Calceolarias, Violas, Lobelias, Verbenas, and similar plants must have an abundant supply of water in dry weather, but the first-named should not be watered overhead or the flowers will be filled with water and fall off. Free-growing plants, such as *Mesembryanthemum cordifolium variegatum*, *Stellaria graminea aurea*, and others employed for carpet bedding, soon encroach on others of less growth if not frequently trimmed. The marginal and other lines forming the different patterns should be kept clear and distinct, or the effect is greatly marred.

Continue the sowing and pricking-out of hardy perennials, such as Carnations, Picotees, Wallflowers, and Brompton Stocks, as soon as large enough to handle. Stocks, Asters, Marigolds, and Zinnias should be well supplied with water or plentiful supplies of liquid manure. Dahlias and Hollyhocks will need to be securely staked and be well supplied with liquid manure. Continue to stake and tie the various border flowers as they advance in growth, and remove dead flowers and seed pods from such as are going out of bloom. Pippings of Pinks may still be inserted, and any that are rooted should now be planted out where they are intended to bloom. Carnations and Picotees if not yet layered should at once be attended to. The summer bloom of Roses is now nearly over, and all straggling shoots should at once be cut in, and every encouragement given the plants to make young wood for autumn blooming.

PLANT HOUSES.

Greenhouse.—The removal of the specimen hardwooded plants outdoors will allow more room to the young growing stock, which are usually kept during the early part of the season in pits with brick sides, which does not allow of sufficient light reaching the lower branches; hence they should now be removed to the more open situation occupied by the larger plants previous to the latter being placed outside. They should be raised near to the glass and be placed thinly so as to be exposed to all the air and light necessary to mature their growth, ventilating freely both day and night.

Camellias.—The general stock of plants are now setting their flower buds, and this is unquestionably the best time for repotting, as there is not the danger of giving a check, as is the case in spring, by disturbing the roots when they are starting into growth; but in carrying out the repotting now—i.e., after the buds are set, it is imperative that it be done before these are larger than a small pea, for if deferred longer it is likely the buds will drop from the effects of moving. As to soil, we prefer turfy loam taken off a couple of inches thick where the soil is inclined to be light and full of fibre, but where this cannot be had fibrous peat should be used. It should not be stacked longer than to destroy the grass, or it may be employed fresh, as when much decomposed it is no better than ordinary soil, and certainly not equal to leaf soil. Do not break the turf very fine, and do not interfere with the roots more than is necessary in removing the crocks and any portions of the ball not occupied with roots, making the new soil as firm as the existing ball. Good drainage is essential, with sufficient sand to keep the soil open. Avoid overpotting.

Primulas from seed sown in spring should now be sufficiently advanced for moving into larger pots. Good fibrous loam three parts, and a part each leaf soil and well-decayed manure with a sprinkling of sand, will suit them well. A light pit, where abundance of air can be given and a thin shade afforded from powerful sun, is the

most suitable place for them. For general purposes 6-inch pots are quite large enough.

Cinerarias for winter and early spring-flowering, seed of which was sown early, should be shifted into 6-inch pots for general purposes, and 7 or 8-inch pots when large plants are required. The soil advised for Primulas suits them. They should be stood on a bed of ashes in a pit or frame, as they do not thrive in a dry medium, and should be near the glass. It is important that they be kept free from aphides by moderate fumigation or dipping in or syringing with tobacco water. Shade should be given them from powerful sun.

Fuchsias that flowered early and been rested may now have the shoots shortened back a little, have the surface soil removed to the depth of an inch or two, supplying fresh, cleansing the foliage with an insecticide, and afterwards remove them to a house or pit where they can be kept a little close and moist by syringing overhead morning and evening. They will break freely and come into flower in about six weeks, and, being assisted with weak liquid manure, will continue to do so until autumn is far advanced. Young Fuchsias are much to be preferred to old plants. Cuttings of free growth should be inserted now and kept close and moist until rooted, afterwards as soon as rooted shifting them into 3-inch or 4-inch pots.

THE BEE-KEEPER.

DRIVING STOCKS.

PLEASE to inform me through the Journal when will be the best time to drive stocks of bees. I artificially swarmed them during the latter part of May and the early part of June. My intention was to drive them on the twenty-first day after swarming, but they were so dreadfully light at that time they were not worth the trouble. I am afraid the honey harvest will soon be over here, the Limes and white Clover are the chief pasture now. What I want to know is when I may expect to find the least unhatched brood.—DERBY.

P.S.—We have only had eight days without rain, more or less, since the 3rd of June.

[If your hives are full of bees and brood now we would advise you to drive three-fourths of the bees into empty hives and vigorously feed them as swarms; the other fourth of the bees should be left to hatch the brood, and at the end of three weeks give all the bees to the swarms. Thus hives extra strong would be obtained. The feeding of the swarms would enable them to build combs rapidly and fill them with brood. This plan is, we think, the best to get strong stocks for winter and next year. If the hives are not strong enough to stand this treatment the bees should be encouraged to breed by feeding for a fortnight or three weeks, and thus made strong enough. Another plan is to let them go on as they are doing till September or till all the brood is hatched, and then drive all the bees at once into empty hives and feed them into stocks. This plan is more extensively practised than the other, but we prefer the former for creating good stocks, the latter for a chance of a late harvest of honey. In September queens naturally cease laying, and artificial feeding then does not cause so large hatches of brood as it does in July and August. This advice is given on the assumption that the honey season is nearly over this year.—A. P.]

PROLONGING THE LIFE OF THE QUEEN BEE.

I CANNOT help protesting against the assumptions of Mr. Pettigrew (page 65) in regard to the duration of life of the queen and worker bee. Not a jot of the evidence he adduces meets the case. Had he worked with bar-frame hives and Ligurian bees he must long ago have given up his theories as untenable. The now common operation of introducing a yellow queen into a black stock proves to a certainty that the whole population of a hive is changed in from four to six weeks in summer, and from six to eight months in the resting season. If the proper deduction from this fact is not that work exhausts bees I cannot conceive any other. There is a difference, however, between outdoor and indoor work, my experience being that the latter—viz., comb-building and brood-rearing, are by far more exhaustive than outdoor labour. The extended existence of a queenless stock proves this.

There are, however, other elements at work in reducing the

population of hives even at midsummer. I have reports from several districts in Scotland before me to the effect that during May and June of this year strong hives lost so many thousands of bees (mostly young bees too) that they dwindled rapidly, and were rendered useless as super-producing stocks for the present season. In these cases the symptoms were exactly such as I have formerly described as the result of feeding on honeydew off certain trees. The bees young and old were found running helplessly about in front of the hives. They could not fly, and though lifted on to the floorboard refused to re-enter their hives. On being dissected their honey bags were found full of a sticky substance like glue, probably honeydew. But these are exceptional causes of depopulation, the main fact standing much as Dr. Dzierzon expresses it. The practical value of the facts lead all advanced bee-keepers to guard against any cessation of breeding in the early autumn months. We do not double stocks to ensure strong populations as the disciples of Mr. Pettigrew wastefully do. We only stimulate by gentle feeding during the early months of autumn and spring, and thus get at little expense a fresh hatch of young bees, 1 lb. of which in August are worth 5 lbs. of driven bees at a later date.

As to queens, I am also constrained to differ from our venerable friend of skeps. Mr. Pettigrew seems to teach that nothing the bee-keeper can do has any effect on the number of eggs laid by a queen; that, in fact, there is no such thing possible as stimulation, and that consequently every queen bee should live out her full term of four years or more. Now, it is somewhat extraordinary that though I never kill a queen that is doing well, especially if she is an Italian, I have not in an apiary of nearly forty hives one queen over two years old. Careful observation leads me to conclude that the bees quietly supersede queens that are failing far oftener than we generally suppose. Only three weeks ago I found the last of my three-year-old queens laying on a comb alongside of a princess a few days old; in a few days more I found the dead body of my old favourite in front of the hive, and I have every reason to believe that other four or five of my oldest queens were thus superseded during this summer. Bee-keepers generally do not take means of identifying their queens, all are alike to them, consequently an old queen may be superseded and the young one get the credit of all her years added to its own. Thus we hear of queens seven years old, the proof being that the stock never swarmed all that time!

Others, however, like myself, know almost every queen by sight. We see them frequently and note their differences in shape, size, or colour. Mixed apiaries of black and Italian bees soon come to have queens with different characteristics; and this is useful, especially at swarming time, for we can separate a mass of bees composed of two or three swarms and return each queen to her own hive if desired. One is pure black, another is a dark Italian, a third is yellow to the tip, the fourth has a very yellow body with a black tip, and so on. Thus we are able to some extent to follow out the history of our queens and to certify their age; others, not content with natural marks, dye or punch the queen's wings, or clip off certain portions of them each year in order to be able at a glance to tell her age. I have all valuable queens clipped, not only to mark their age but to prevent loss of swarms. I mention these things to show that we do not speak without book when we mention the ages of our queens.

Now, I may state it as a fact that before the advent of comb foundation it was the rule rather than the exception for my queens to live from three to four years. Now, however, they are so frequently superseded by the bees, or fail otherwise before they are three years old, that I never judge it safe to keep one over two years. Comb foundation, combined with stimulative feeding perhaps, has shortened the life of queens by a year. And this is how it happens. Instead of wintering a stock on all its combs we remove all that are not crowded with bees. In spring we insert, as fast as the bees get crowded, sheets of foundation in the centre of the brood nest. We use these rather than the old combs, because we get nearly twice as many eggs laid in them. The bees, seconded by the queen, use every endeavour to occupy the hiatus, and often in twenty-four hours there are from three thousand to four thousand eggs laid in these sheets. We know this is hard on the queen, and only by great care do we prevent a permanent separation of the brood nest into two. Now if the queen has no power over the production of eggs it seems strange that a good queen so nearly lays in proportion to the number of bees. Doubtless, occasionally she will lay three or more eggs in a cell, but not if she have room otherwise within the cluster. This does not prove any inability on the part of the queen, but only her uncommon prolificness, and the necessity for supplying her either with more bees or with empty cells.

Leaving facts and venturing on theory, I should say that it seems

to me that a queen bee can only lay a limited number of fertile eggs during life. The number may be millions, but it has a limit, and that limit is generally reached when the contents of her spermatheca are exhausted. So far as I can learn spermatozoa are not reproductive in the spermatheca of the queen. Their number is being reduced with every egg that is laid, and an end of them comes at last. The queen may still be capable of laying thousands of eggs, though, as we know, these being unfertilised, produce drones only. She herself does not realise this, for she lays them still in worker cells. The wonderful instincts of the bees lead them generally to anticipate this failure and to raise a successor. But the fact remains that the queen, apparently perfectly healthy, has laid her last fertile egg. We cannot say she herself is exhausted, for it is rarely that the queen dies of old age; she is superseded and killed because her spermatheca is empty.

Dzierzon's theory of the fertilisation of queens has withstood all opposition for years. The views he now endorses regarding the possibility of prolonging their life are in perfect accordance with his former abundantly proved theories. They only need the experience of advanced bee-keepers to verify or refute them, and I must say that I, for one, not only endorse them but have acted according to them for years.—WILLIAM RAITT, *Blairgowrie*.

BERKS AND BUCKS BEE-KEEPERS' ASSOCIATION'S SHOW.

THIS Association held its third annual Exhibition of hives, honey, &c., at Buckingham, on Tuesday, the 25th of July, in connection with the Show of the Horticultural Society. A remarkably fine day, together with the numerous attractions of the flowers, vegetables, dead poultry, eggs, fruit, hives, honey, bee-driving, &c., drew together a large concourse, not only of the middle and lower classes, but of the nobility and gentry of the town and county, the clergy being especially conspicuous by their numbers. This is as it should be, and some other counties may well take a lesson from the Bucks and Berks Association in this respect, and by patronising similar associations help forward a work pregnant with untold benefits to their poorer neighbours and dependants. To say that the Rev. H. R. Peel, the indefatigable Secretary of the British Bee-keepers' Association, was the manager of the apiarian department and the giver of various prizes, is simply to announce its success. Wherever this gentleman goes he appears to galvanise life into bee-keeping, and we trust that Buckinghamshire may carry on into remote years the impetus already given. The county, physically speaking, is indeed worthy of the effort, for its rural scenery, varied by wood and dale, and its rich pasture land, covered at the present time by the most luxuriant crops of white Clover, cannot fail to render it one of the most prolific honey-producing counties in the land.

The exhibits and the successful exhibitors we cannot find space to particularise. In addition to the prize list, which we give below, suffice it to say that the well-known names of Messrs. Abbott Brothers of Southall and Mr. Blow of Welwyn, Herts, were conspicuous on the prize list and for the variety and quality of the specimens displayed. The Rev. George Raynor of Hazeleigh Rectory, Essex, performed the office of Judge. We give the list of the prizetakers:—

For the best observatory hive stocked with bees and their queen, the bees to be in confinement.—First, £1, T. B. Blow, Welwyn; second, 10s., R. H. Stothill, Stewkley.

For the best moveable comb hive for general use, price to be taken into consideration.—First, £1, T. B. Blow; second, 10s., Abbott Bros., Southall.

For the best moveable comb hive for a cottager's use, price not to exceed 10s.—First, 10s., Abbott Bros., Southall.

For the best straw hive adapted to modern bee-keeping, price not to exceed 5s.—First, 7s. 6d., W. Martin, High Wycombe; extra, 5s., Abbott Bros.

For the best and most complete collection of bee furniture.—First, £1 10s., T. B. Blow; second, £1, Abbott Bros.

Special class, open to the members of the Berks and Bucks Bee-keepers' Association only. For the best twenty-one 1-lb. sections of comb honey.—First prize (silver medal given by the British Bee-keepers' Association) W. Carter, Clewer, Windsor.

For the best display of comb honey in sections, no section to be more than 2 lbs. in weight (prizes given by the Rev. H. R. Peel).—First, 15s., M. Hunt, Addington; second, 10s., J. K. Filbee, Nap Hill, High Wycombe; third, 5s., G. B. Lacey, High Wycombe.

For the best super of honey, not sectional.—First (a special prize given by Mr. Welham Clarke, a bar-frame hive value 12s.) G. B. Lacey; second, 7s. 6d., W. Martin; second, 7s. 6d., J. K. Filbee.

For the largest and best exhibition of run or extracted honey in glass jars or bottles, quality chiefly considered.—First, 10s., W. Martin; second, 7s. 6d., J. K. Filbee.

For the best sample of pure beeswax not less than 2 lbs. in weight obtained from combs made by the exhibitor's own bees.—First, 7s. 6d., Abbott Bros.; second, 5s., W. Martin; third, 2s. 6d., J. K. Filbee.

Driving competition.—For the competitor who shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep, capture and exhibit the queen.—First, £1, R. Stothill (4 min. 30 sec.); second, 10s., J. K. Filbee (8 min. 30 sec.); third, 5s., W. Martin (8 min. 35 sec.).

BRITISH BEE-KEEPERS' ASSOCIATION.—The annual great metropolitan Show of bees, hives, honey, &c., opens this day (Thursday). Upwards of three hundred entries have been made. The Exhibition promises to be a most successful and memorable one, inasmuch as the

Committee have arranged to conduct an examination of candidates who are desirous of gaining certificates of proficiency in the art of bee-keeping. Eighteen candidates have entered for such an examination, amongst the number being several schoolmasters.

TRADE CATALOGUES RECEIVED.

T. H. P. Dennis & Co., Mansion House Buildings, London, E.C.—*List of Greenhouses, Frames, &c. (illustrated).*
L. Späth, Berlin.—*List of Bulbs.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Budding Briars (*Robin*).—It is certainly not too late to insert buds provided the bark separates from the wood of the stocks freely. We consider therefore that you have been misinformed on that point. Nor do we consider you have been well advised to shorten the Briar shoots nearly close to the buds, when the latter are inserted. We do not shorten them at all at that time, and it is very rarely indeed that we have inserted a bud that has failed to grow.

Chrysanthemums and Grapes (*Dr. Muckenzie*).—The flowers are forms of *Chrysanthemum carinatum* and are very good indeed, the colours being very bright and rich. Varietal names are given to some of the most distinct by seedsmen; the darkest flower you have sent resembling a variety named Lord Beaconsfield. The seed that has produced your plants has evidently been obtained from a good strain or collection. It is by no means easy to determine the name of a Grape from half a dozen imperfect berries, and we can only say that we think your variety is Royal Muscadine; it is certainly not Buckland Sweetwater.

Raspberries (*D. Lake*).—We have never transplanted Raspberry canes at this season of the year, nor do we suppose we shall, for the sufficient reason that we can attain our object without trying such an experiment. We have planted young suckers in showery weather in the spring when they were from 6 to 9 inches high, as when of that size many of them have produced roots. The suckers so transplanted made excellent canes the same season. By all means remove the old canes now, or as soon as you have gathered all the fruit, and you may with advantage remove some of the young growths also if they are crowded, but do not injure the foliage of those remaining. The best canes thus thinly disposed will mature and assume a very fruitful character. Your fruit being dry and small is due either to poverty of soil, overcrowded and consequently weak and immature canes, or an inferior variety.

Mealy Bug on Vines (*Inquirer*).—As the Grapes are cut you will be able to keep the insects in check by violent syringings or an occasional washing with a garden engine. Merely wetting the foliage is of no use, as the meal of the insect is impervious to water thus applied; but forcible and continuous syringings are useful. If immediately after a washing of this kind you syringe the Vines with a solution of paraffin and soft soap at the rate of half a wineglassful of the former to 3 ozs. of the latter to each gallon of water, applying at a temperature of 120°, you will not injure the Vines, while it will destroy many insects if the work is well done. A correspondent, "A. C.," published a useful hint in our columns in 1880. He did not permit the leaves to fall, but as soon as they turned yellow removed and burned them. On placing the leaves and prunings on a sheet he found hundreds of insects that would otherwise have found shelter in the house. The Vines sustained no injury by the early removal of the foliage, as the Grapes were better in the following year. You will find the article referred to on page 163, August 19th, 1880. You had better also read an article on page 63, July 22nd, 1880. If you do not possess these numbers they can be had in return for 7d. in stamps sent to the publisher with the request that he send you Nos. 4 and 8, Third Series.

Kalosanthes (*B. D., York*).—The shoots that have flowered this year will not flower next season, but the young growths if sufficiently strong and are matured under full exposure to the sun will form flower heads. You had better cut down the shoots that have flowered and encourage the others. If the latter are not numerous or not sufficient for producing a satisfactory display it will be well to cut down the plants entirely. You will then ensure numerous and regularly disposed growths, and with good culture fine flowering plants in 1884. Some cultivators have two sets of plants, which they flower and cut down alternately, and by no other method can such satisfactory results be secured. The plants should be kept rather dry in the winter, but not dust dry by any means, or their vigour will be impaired.

Balsams (*Hender & Sons*).—Although the blooms were much bruised and shaken on account of the box not having been quite filled, we are able to say they are excellent. They are very double, some of them being quite filled to the centre like a Camellia; and the colours represented are pure white, blush, rosy lilac, scarlet and purple, some of the petals being marbled. There must, we imagine, be some difficulty in obtaining seed from such flowers as those before us; in fact some of them could not produce seeds, as all the stamens, &c., have been transformed into petals.

Fig Tree not Bearing (*Old Subscriber*).—Your tree has no doubt been permitted to grow too luxuriantly, and the wood has consequently not been matured. You say you cut the roots once with no effect. Cutting the roots is a very relative term, and we suspect the work was imperfectly done. We should dig a trench round the tree at one-third the distance from the stem that the tree is in height. This trench should be 2 feet wide and be dug quite below the roots. The semicircular mass of soil thus formed should also be undermined, severing all the roots that penetrate the subsoil. Fill this trench with hard poor material, lime rubbish being excellent, and ram it down as hard as a floor. This will check root-action, and the growths will be more firm and short-jointed. Remove also all sappy and luxuriant growths at once, exposing those that are shorter and weaker to the full action of the sun. The leaves of these must not be shaded at all, and any shoots that are afterwards produced promptly removed. When once the tree produces short-jointed growths but little pruning will be needed beyond removing entirely any superfluous growths which otherwise would shade the foliage of those intended for producing fruit. Overcrowding the foliage of Fig trees and undue root-extension, which is incited by a multitude of shoots, are quite sufficient to prevent the trees bearing fruit. If you carry out the advice we have given thoroughly and thoughtfully, and the trees still remain barren, you may dig them up.

Pruning Morello Cherries and Gooseberries (*Idem*).—Secure as much of the young wood to the wall without shortening the shoots as can be done without unduly crowding the trees, removing at the same time those shoots that are not required for retention, remembering that as a rule the most luxuriant growths are not the most fruitful; these therefore should be cut out, preserving those that are moderately strong for fruiting. Gooseberry bushes if crowded may be partially pruned now by shortening the side shoots on the main branches to within 2 or 3 inches of the base of each, allowing the terminals to extend unless they are growing beyond the allotted bounds. The pruning can be completed in the winter or early spring. See our remarks to another correspondent on pruning Raspberries.

Eryngiums (*J. W. L.*).—The plants of which you desire some particulars are members of the natural order Umbelliferae, but very distinct in general appearance from the commonest types of that family. The leaves in several species are long, narrow, and spiny, something like the leaves of a Pine Apple plant. The flowers individually are not conspicuous, but the tall inflorescence is striking. In some forms, as *E. amethystinum*, *E. maritimum*, *E. Bourgati*, and *E. caeruleum*, have a bluish hue that is very pleasing; and *E. eburneum*, of which a plant is shown in fig. 21, is a handsome species from Brazil, but hardy in the south of England. All the Eryngiums succeed best in rather light sandy soil, but in other respects they are not at all particular. *Eryngium campestre*, or common Eryngo, is a native of the whole continent of Europe, and is found in some places



Fig. 21.—*Eryngium eburneum*.

in Britain. The root has a slightly bitter and aromatic taste, which it almost entirely loses by boiling in water, and in this last state the country people on the continent use it as an aliment. The Sea Holly, Sea Holver, or Sea Holme (*E. maritimum*), grows on the seashore in many parts of Britain. According to Linnæus the young flowering shoots of this plant, eaten like Asparagus, are very nourishing. The leaves are sweetish, with a slight aromatic warm pungency. The roots are supposed to have the same virtues as the Orchis tribe. They are kept in shops candied, and have the reputation of being stimulating and restorative. They were first candied at Colchester in Essex about the beginning of the seventeenth century by an apothecary named Robert Buxton, and the same business is still continued in that town. *E. aquaticum* is a native of low wet places in the United States, where it is called Button Snake-root. The root has a bitter, pungent, aromatic taste, causing, when chewed, a flow of saliva.

Begonia Flowers Falling (*L. W. S.*).—When the plants are flowering profusely it is not unusual for a few flowers to fall prematurely, and the beauty

of the plants is not seriously impaired. This, so far as we understand your letter, is the case with your plants. If the pots are filled with active and healthy roots a little weak clear liquid manure applied twice a week will have a beneficial effect. Soot water is safe and good, and should be given of the same colour as pale ale.

Cinerarias Unhealthy (*Idem*).—A leaf-mining insect sometimes attacks Cinerarias, doing them much injury. We know of no remedy, nor any better course to adopt than to remove those leaves that are much mutilated, and by generous culture encourage the production of new and better foliage. Remove the healthy plants from the others, and they will with good attention probably remain healthy. We presume the plants are in frames. A greenhouse is unsuitable for them in summer, and a too dry atmosphere is the cause of many plants being "stunted." If we had manure such as you describe, decayed so as to crumble to mould, we should prefer it to leaf soil for all free-growing soft-wooded plants. Your last question relative to the addition of a fertiliser is unanswerable, as you do not intimate what the plants are that you desire to cultivate.

Heating a Conservatory (*Novice*).—There is no method of heating a building of the kind you mention at all comparable with a small boiler and 4-inch pipes. In all probability if you could invite an intelligent gardener or local nurseryman to inspect the house he would be able to devise a plan for attaining your object; or an ironmonger having experience in heating would point out to you an arrangement that would answer. The smoke flues from the furnace of many conservatories are connected with a chimney of the house near which the structures are erected, and possibly a similar arrangement can be made in your case.

Reporting (*Anonymous*).—We agree with you that it is of the greatest importance that shows be correctly reported. Every endeavour is made to accomplish this, and if an error occurs we most readily publish a correction when it is brought to our notice in a proper manner and duly authenticated. While we agree with you on that point we hope you will agree with us on another—namely, the extreme desirability of first ascertaining the truth of a matter before a grave charge of inaccuracy is preferred. Mr. Douglas, one of the Secretaries of the National Carnation Society, is not of the same opinion as you are, or were, and possibly he may have told you so. In a letter before us he says—"I do not see the errors in the Journal, and think the report is a very good one; but as it was late before the new flowers were examined, and as they were scattered about in the various stands, it was easy enough to make mistakes in reporting, and I trust your reporter was not put to any inconvenience; as it is *he did his part as well as it was possible to do it*." This is a very different letter from yours both in matter and tone, and if you cannot substantiate the charges you have made, and your sense of justice should impel you to offer an apology to our reporter, it will not be less frank and graceful if you do not do it anonymously.

Heating Arrangement in Pinery (*F. C.*).—You do not give the size of the pit, but we presume there is a path along the house, which will take up at least 2 feet of the width, and the flue also will occupy another foot, which will leave some 4 to 5 feet as the width of the pit or bed. Two rows of 4-inch pipes in a chamber beneath a bed of the width above indicated will be sufficient to afford a bottom heat of 90°, provided the pipes are disposed about a foot from the sides of the pit all round and immediately under the covers or flags forming the bottom of the plunging bed, the space of the heated chamber not being deeper than will admit of the pipes being clear of the ground or floor of the chamber. It is no deterrent to the heating of the bed for the covers of the chamber to rest or lie on the pipes, and the joints of the covers should be open, only being sufficiently close to prevent the plunging material from passing through the interstices. Sand is a bad conductor of heat; a more open material should be used, such as tan, sawdust, or cocoa fibre refuse, or even ashes. The sand will account in a great measure for the difficulty in maintaining the bottom heat at 90°, but we think, from the section, that the heating chamber is too deep, the pipes being arranged one over the other instead of on the flat or same level, with a slight incline to the boiler in both from the highest point, or that most distant from the boiler. It will be necessary to have fire day and night more or less as the weather determine to maintain the requisite bottom and top heat. For so small a boiler a ton of fuel (coal or coke) would serve about ten weeks. We do not think the consumption of fuel excessive.

Budding Fruit Trees (*Idem*).—The proper time to bud the Apricot and Cherry is from the beginning of July to the early part of August, according to the locality and the earliness or lateness of the season. Peaches and Nectarines are usually not ready for budding until after the middle of July, and sometimes not until the middle of August, it being important that the wood become rather firm and the buds developed before operating. The condition of the wood and buds is of far greater importance than any mere date for performing the operation. Procure more buds and insert them now, and if these and the stocks are in a proper state you will probably succeed in your object. We cannot undertake to interpret the passages to which you refer, nor is it necessary, after the author has stated truly that "the only rule that can be laid down in the case is that the buds should appear plump, fully and perfectly formed in the axils of the leaves, and the bark rising freely in the shoot into which the bud is to be inserted."

Fragaria indica (*X.*).—The plant concerning which you desire some information bears the above name, being a species of Strawberry that is very useful for decorative purposes. When a number of plants are grown in small pots they form a most pleasing edge for shelves in greenhouses or conservatories, the slender trailing growths then forming a fringe of green, in which the bright red fruits are very conspicuous.

Names of Plants (*C. H. Stephens*).—We have stated repeatedly, and even as late as last week, that we do not undertake to name varieties of florists' flowers. The petals had fallen from the single varieties: the semi-double form is probably Wonderful, a sport from Vesuvius. (*K. L., Cheshire*).—*Sedum Sieboldi* variegatum. (*H. J. G.*).—1, *Aspidium aculeatum*; 2, *Asplenium maritimum*; 3, *Doodia media*; 4, *Pteris serrulata*; 5, a *Selaginella*, specific name not determinable from such a fragment. (*J. W.*).—A very richly coloured variety of *Scabiosa succisa*. (*G. S.*).—*Veratrum nigrum*. (*R. C. F. G.*).—The Fern is *Woodsia obtusa*. The blue flower is *Centaurea montana*. (*A. G.*).—1, *Adiantum Capillus-Veneris*; 2, *Gymnadenia conopsea*; 3, *Polypodium rhæticum*. (*Keswick*).—*Tecoma stans*. (*W. H. Myers*).—13, *Agrostis canina* (Marsh Bent Grass); 17, *Arrhenatherum avnaceum* (Oat-like Soft Grass); 18, *Phleura pratense* (Cat's-tail or Timothy Grass), an excellent meadow grass; 22, *Triticum caninum* (Bearded Couch Grass); 25, *Trisetum flavescens* (Yellowish Oat Grass); 28, *Schlerochloa rigida* (Rigid Meadow Grass), this is a handsome little Grass of no agricultural use frequently found in the limestone and by the seacoast. (*J. P., Greenock*).—1, *Doronicum austriacum*; 2, *Veronica spicata*; 3, *Veronica rupestris*; 4, no flowers expanded, probably a *Coreopsis*; 5, *Veronica gentianoides*; 6, *Sedum spatulifolium*.

COVENT GARDEN MARKET.—AUGUST 2ND.

TRADE has been quiet during the week, our market settling down to a more steady business.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Lemons.....	case 20	0 to 30 0
Apricots.....	box	1 6 2 0	Melons.....	each	2 0 4 0
Cherries.....	½ sieve	6 0 12 0	Nectarines....	dozen	4 0 12 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	100	4 0 6 0
Currants, Black..	½ sieve	3 6 4 0	Peaches.....	dozen	4 0 12 0
" Red.....	½ sieve	2 6 3 6	Pears, kitchen ..	dozen	0 0 0 0
Figs.....	dozen	4 0 0 0	Pears, dessert ..	dozen	0 0 0 0
Filberts.....	lb.	0 0 0 0	Pine Apples, English	lb.	3 0 4 0
Cobs.....	100 lb.	0 0 0 0	Raspberries ..	lb.	0 3 0 6
Gooseberries ..	½ sieve	2 6 3 6	Strawberries ..	lb.	0 6 1 0
Grapes.....	lb.	1 0 4 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Lettuces.....	score	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mushrooms.....	punnet	1 0 1 6
Beans, Kidney....	100	1 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beet, Red.....	dozen	1 0 2 0	Onions.....	bc.	0 6 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 10 6 0
Capicums.....	100	1 6 2 0	Potatoes.....	cwt.	6 0 7 0
Carrots.....	bunch	0 4 0 6	Kidney.....	cwt.	6 0 8 0
Cauliflowers.....	dozen	2 0 3 0	Radishes....	doz. bunches	1 0 0 6
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzoneria ..	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	lb.	0 3 0 0
Garlic.....	lb.	0 6 0 0	Spinach.....	bushel	3 0 0 6
Herbs.....	bunch	0 2 0 0	Tomatoes.....	lb.	0 6 0 8
Leeks.....	bunch	0 3 0 4	Turnips, new.....	bunch	0 6 0 0



POULTRY AND PIGEON CHRONICLE.

MAXIMUM PRODUCE OF FARM CROPS.

(Continued from page 93.)

IN continuation of the subject we intend to record the growth of a crop of winter Oats grown after Wheat on a fine sandy loam soil on the Manor Farm, Durley, in the North Hants division of the county, occupied by Mr. Edward Waters, who informs us that in 1868 he grew a crop of winter Oats, which reached 9 quarters and 6 bushels per acre of fine quality. This, as compared with the common varieties of spring-sown Oats, does not seem very remarkable; it is, however, well known that winter Oats never yield so much in proportion to the bulk of straw, but we introduce this crop as the largest we have known in our own experience of this variety.

Having finished the principal records we have obtained of the different cereal crops, we shall now refer to pulse crops and seeds. Taking first a crop of common Scotch Beans grown by Mr. John Wilson of Berwickshire, who states that he grew some years previous to 1824, but cannot give the year, a field of 11 acres, which yielded 600 bushels. This information we quote from his letter to J. C. Morton, Esq., and given in the Journal of the Royal Agricultural Society in 1859. Our next record comes from the other end of the kingdom, and was given to us in 1827 by a Mr. R. Hickley, who farmed his own property at Bursledon near Southampton. He stated that he grew in the year 1812, on a field of 7 acres, the land being a very strong clay loam with a south aspect, a crop of the common sort of horse Bean of the period, of 20 sacks per acre on the average, but that upon a measured acre the produce reached 28 sacks, and this upon land which had never been manured for a period of sixty years, but farmed upon the ancient system—a fallow every fourth year, followed by Wheat, Lent corn, and pulse or Clover. We have, however, now to notice a remarkable record of a Bean crop grown in the same year, 1812, in a field within sight of the land just named, and at that time farmed by the owner, Mr. George Cleverly, it being a field of 4 acres surrounded by woodlands, with a north-west

aspect, and the soil of an exceedingly strong putty-like clay. We do not know what was the previous crop, but the Beans were sown broadcast, and the crop never hoed or cleaned in any way, and our informant stated that the Thistles which went to seed were nearly as thick as the Bean stalks, and yet the produce was 28 sacks per acre on the average. This information was obtained from various persons in the neighbourhood, but especially from a labourer of the district, who stated that when he was a lad he assisted his father in the threshing by flail and winnowing of the crop. A most curious circumstance, however, is, that the land was never afterwards cultivated, and to this day is run to waste and woodland.

We have now to notice Peas as a farm crop, although they are generally very uncertain. We shall give the only record we have of a crop of Blue Imperial Peas grown by Mr. Davis, the tenant of a farm called Otterwood in the New Forest district. This occurred, as our informant stated, in the year 1871. There was, however, no special management relating to the cultivation of the land, which was a strong clay-like gravel. The produce was 7 quarters per acre and a very bulky crop of haulm, which was unlike Pea haulm in general, the singular circumstance being that the cattle would not eat it although well harvested. This was certainly a large produce when we consider that from 5 to 6 quarters is generally the outside produce of the ordinary field Peas, such as the Early Dun, Marlborough Grey, and the Maple or Partridge.

A full crop of winter Vetches grown a chalk soil in the district of Andover in North Hants in the year 1874 next deserves notice. Our informant stated that he was not authorised to give the grower's name, but the facts could be well substantiated. The produce was 12 sacks per acre, irrespective of any special or particular cultivation or manuring. In the same district, and by the same informant, we get the produce of a yield of cow grass seed, which was verified as 12 bushels per acre. The same gentleman also gave a record of 9 bushels of Broad Clover seed grown in the same district.

We, however, have an interesting account furnished of the growth of a crop of 12 bushels per acre of red Clover seed of the old English variety as far back as the year 1815, and grown on the same field which produced the large crop of Beans in 1812, as stated by Mr. Richard Hickley, at Bursledon near Southampton. Now, when we consider that the ordinary crop of red Clover has not amounted to more than 3 or 4 bushels per acre average during the past ten or fifteen years, these three sacks per acre is an enormous crop, and as it was sold to the late Mr. C. Lipscombe, seedsman of Alton, Hants, at 1s. per lb., the value of the crop almost reached the fee simple of the land. There is, however, a point to which we desire attention being given—that, in point of fact, it is very rare now to find a sample of old English red Clover, foreign-grown seed has been so much sought for; but this foreign seed is much smaller than the old-fashioned English sort, and gives but a poor second growth either for hay or for seed.

Now we are considering the subject of seeds we will notice a crop of Mangold seed as stated in the Journal of the Royal Agricultural Society, to have been grown by Mr. John Bush of Long Sutton in Lincolnshire, in 1859, who grew 92 bushels of Mangold seed upon 3 roods of land, or equal to 120 bushels per acre. This is selected as the yield possible, no history having been given in connection with it as to soil, &c. We have now to refer to green fodder crops. There is mentioned also in the Royal Agricultural Society of England's Journal of 1859 the extraordinary growth of Italian Rye Grass obtained from a poor sandy soil at Canning Park Farm, in the neighbourhood of Ayr in Scotland, when by the use of 3 or 4 cwt. of guano, &c.,

per acre after each cutting, washed in by 100 tons of water mixed with liquid manure from the cow stalls, three or four cuttings were obtained by the end of the month of October, weighing from 40 to 50 tons of green fodder per acre.

The late Mr. Dickenson of New Park, in the New Forest, gave his statement of the growth, cultivation, and produce of Italian Rye Grass, in a paper read before the Botley and South Hants Farmers' Club in 1856, whereby upon his system of irrigation with liquid manure he obtained in 1848 seven cuttings in the year, commencing with the month of March and finishing in October, the average weight of grass being 10 tons each time, or 70 tons per acre in the year. He said any retentive soil suited for Beans, Wheat, or Oats if in high condition is suitable for this crop. Ammonia being the food for this grass, urine and water stand first, guano in wet seasons, nitrate of soda in hot dry seasons. He further stated that by artificial drying the grass in lofts 19 cwt. of grass yielded 6 cwt. of hay.

Mr. Simpson of Teawig near Beaulieu, Inverness-shire, gives the following particulars of an extraordinary crop of Potatoes, as published in Mr. J. C. Morton's essay in the Royal Agricultural Society's Journal in 1859. The crop grown was of the variety called Flukes, which produced $9\frac{1}{2}$ tons per acre, the manure used being Peruvian guano. This sort of Potatoes are considered of the finest quality. We have to record another instance of the value of a Potato crop grown in Scotland, although we cannot record the quantity grown per acre. Mr. Buttar, who farms six hundred acres of land, grew in 1879, 58 acres of the Champion Potato chiefly, and sold them for £35 per acre. We have also to record, as reported in Mr. J. C. Morton's essay as above named, "a crop of Carrots grown by Mr. Blundell of Bursledon, Southampton, an active member of the Botley Farmers' Club, and frequently a Judge at the meetings of the Royal Agricultural Society, who informs me that in 1857, on a field of light loamy soil in his occupation, he grew an extraordinary crop of the White Belgian Carrot, of which the following particulars give the history. Fallow preparation: soil, sandy loam; seed, White Belgian Carrot, 6 lbs. per acre, drilled May 14th, 16 inches apart between the rows; manure, 2 cwt. superphosphate of lime and 25 bushels of ashes per acre; the crop flat-hoed between the rows; the rows thinned by hand-pulling, which afforded 14 tons per acre of excellent food for cattle from 1st of August to 14th September. The roots we raised in the second week of November weighed 24 tons, 18 cwt., 2 qrs. per acre, there being 348 roots per pole; the tops weighed by estimate 7 tons 5 cwt. per acre. The total weight of crop per acre 46 tons, 3 cwt., 2 qrs. On a part of the same field the crop not thinned in the rows raised at the same time weighed 31 tons, 2 cwt., 3 qrs. per acre, there being 980 plants per pole, the tops weighing by estimate 6 tons 10 cwt. per acre; total weight of crop per acre 37 tons, 12 cwt., 3 qrs. With reference to these figures Mr. Blundell says that neither the thinnings of the crop nor the greens were weighed, but that having often weighed the greens from his Carrot crop up to 9 tons per acre, he is confident in the accuracy of his estimate. The main crop of roots was actually weighed."

We have next to record a crop of Yellow Globe Mangolds grown upon land in the occupation of Stewart Macnaghten, Esq. of Bitterne Manor House, near Southampton, in the year 1859. The crop being carefully weighed proved to be 55 tons per acre, and grown upon land adjoining the seashore, but to which artificial manures only were applied. Again, we quote from Mr. Morton's essay the evidence of Mr. J. Innes, Colonel North's agent, "That in 1858 they grew a crop of Long Mangolds on the ridge, farm-yard dung being applied, and also 2 cwt. guano, 2 cwt. Proctor and Ryland's Mangold manure, and 2 cwt. of salt per acre. This was upon the Wroxton Abbey Farm near Banbury. On the 25th of October the Judges of the Banbury Agricultural Association weighed a square rod, and found the average weight of the field to be $63\frac{1}{2}$ tons per acre." We must now conclude with the record of a crop of Yellow Mangolds grown by Mr. Burnett of Asbley, Hants, when he farmed in Ireland in 1851, and which he states as fairly weighed, and proved the produce to be 65 tons per acre. In quitting our subject for the present, we say in conclusion that we propose to return to it on some future occasion.

WORK ON THE HOME FARM.

Horse Labour.—This has been much delayed lately, not only in consequence of the horses being required in carting the hay to the stack from the water meadows in the early districts, and the general crop from the pastures of the midland and northern districts, but horse labour on the fallows has been seriously interfered with lately. Every opportunity should now, however, be taken to cross-plough the fallows intended for next year's Wheat land. Horse-hoeing the root crops has unfortunately been very ineffective, owing to the continued stormy weather which has prevailed. The weather has been

adapted for the planting of Cabbage, Thousand-headed Kale, and Kohl Rabi, and in those cases where the Mangold plants are deficient it is well to plant some Oxheart sort of Cabbage, which variety forms heads very quickly. They will furnish useful sound heads at the time the Mangolds are raised for storing, and especially if the plants have been set with the spade, as this opens the land and leaves it loose and favourable for the young plants to root in. When the horses cannot be worked on the land, earth-carting to heap ready for use in the cattle boxes, pig pens, &c., may be done. The odd horse or mule for carting Clover and other green fodder for cattle and horses will now have full employment, and it has always been our custom for the odd horse or horses to cart the green food for the farm horses. We do not like the plan which is too often adopted for the carters or teamsmen to cut and cart the grass required for their horses. This work prevents them being able to carry out a longer day's work than usual in a busy time, especially in the hay and corn harvest. It is yet too early for the returns as to the quality of hay stacked under the new system of exhausting the heat by the fan, although various farmers we know have tried the plan; but we must not expect to hear of the success of their endeavours or otherwise until the ricks are cut, and the quality and condition of the hay proved by appearance. We think that the new system is quite as well adapted for corn as for hay, especially in those cases where the Clover has become rank and strong in the Barley crops, and also for the crops of Oats in the lake and mountainous districts of the north of England, and particularly in the elevated highlands of Scotland.

Hand Labour.—We have recently mown over the pasture lands which have been fed by the cattle, and the coarsest grasses refused by the cattle have been made into rough cow hay suitable for young dairy cattle to eat with roots in the winter; for we find that it is desirable to get rid of the grass refused, as it improves the after growth, and at the same time lessens the probability of the formation of ergot on the grass seed heads. It has been quite impossible in those districts where the rains have been the heaviest and most continued to destroy weeds in the root crops by either horse or hand-hoeing; it remains therefore to be considered as to the propriety of hand-picking the weeds after hand-hoeing or of sacrificing the prospects of a crop. Our early white Oats have been ripe for some few days on gravelly soil, and we began cutting and tying them on Friday the 21st ult. This kind of Oat is of very delicate nature, and when ripe will fall out with the slightest wind; we find therefore the only chance to save the grain and the straw in the best condition as fodder is to cut the crop before it is quite ripe, and our Victoria White Oats are so stout and long, and much laid also, that the mowing and reaping machine could not cut, or cut and bind the crop, without serious waste and loss in the process; we have therefore resorted to the old practice, fagging and tying, as the best means of securing the crop without waste.

Thus far the root crops where hoed in time have not suffered much from the continued rains, and the price of both sheep and cattle is very high indeed. The home farmer may feel assured that if this continues he has no right to expect large profits from stock-feeding this year, and should therefore wait before buying, and even then buy sparingly, and only to supply actual necessities. Should the roots and grass continue their prosperous growth stock can be no dearer; on the other hand, should the season continue to be a wet one the price of sheep will be lower, as it will injure the healthy growth of root crops; and we have noticed in former seasons like 1853, 1860, and 1879 that the sheep became much lower as the rainy season advanced. There is another very important matter to be considered in the case of continuance of wet weather, that the sheep will be sure to suffer from the fluke rot, coathe, or bane as it is called; in fact, the serious losses of sheep in the several years of 1878, 1879, and 1880 is one of the causes of the scarcity of the sheep stock throughout England at the present time, but more particularly in certain grazing districts of the kingdom.

Live Stock.—The management of both sheep and cattle especially on low-lying meadows is most important at this time, for if sheep are trusted in meadows, or even upland parks, they would be much better and safer to have night quarters provided for them upon the arable land, and receive the produce of it either as aftermath. Clover, Sainfoin, Italian Rye Grass, or Summer Vetches, Rape, and Mustard, however, will be very suitable, and this mode of management will go far to keep them sound and healthy, particularly if they receive half a pound of linseed or cotton cake per day. We have never known sheep rot where they have been treated thus, although it is well understood that in case they had remained night and day on the pastures in a wet season they would have taken the fluke. Some of these observations apply to cattle as well as sheep; for although they would not suffer from the fluke so surely as the sheep because they do not bite the grass so close to the ground, yet they are very liable, especially if heifers or heifer calves, to suffer from the quarter-ill if they are allowed to remain entirely on pasture land at night as well as by day, but especially in low-lying grass land subject to night fogs, and particularly as the season advances from this time until when the nights get longer. Even fattening bullocks where they are fast proceeding towards good beef, if the wet weather continues, they will pay well for receiving about 3 lbs. of linseed cake and 2 lbs. of cracked beans per day; and if placed upon drier soils at night time they would still receive further benefit, for some of the best grazing

districts actually lie below the fog level, which does not make a good night lair for them.

BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.—At the Council meeting held at Bristol on the 25th ult., Lord Brooke, M.P. (President), in the chair, Mr. Charles Edwards (as Chairman of the Finance Committee) brought up the quarterly statement of accounts, and reported that all prizes in connection with the Cardiff Show had been paid, and that after meeting the liabilities of the year a balance of from £700 to £800 in favour of the Society was anticipated. Letters strongly advocating the choice of Maidstone as the place of meeting were read from the Mayor of that town, Sir J. F. Lennard, Bart., and Mr. Brassey, M.P., and it was unanimously resolved that the Secretary do inform the Mayor that the Council will be prepared to visit Maidstone in 1884, on condition that the requirements of the Society are complied with.

POULTRY AND PIGEONS

EARLY CHICKEN SHOWS.

THE season has come round at which we observe one or more classes for chickens in all the many schedules of forthcoming poultry shows which are sent to us. Doubtless, many a beginner and would-be prizetaker is much interested in these. He or she may have bought a high-priced prize pen at one of last year's autumnal shows, and longs as soon as possible to test the merit of their produce. Success or failure at a first attempt brings much elation or disappointment with it in graver matters than poultry-showing. In this particular pursuit we have often seen the great mistake made of supposing that a victory with an early chicken at some small shows must inevitably lead to a series of triumphs all through the season. On the other hand, we have known a young exhibitor, whose Geese of course are all Swans, utterly disgusted because some in his eyes perfect bird has been beaten by another of a totally different kind at an early show, at once denounce all shows and judging as unfair, and never again exhibit a bird which when more developed and shown against others of its own breed where classification is more complete could not fail to become a winner.

It seems to us the time to say a little about these early shows, which are in our opinion by no means an unmixed source of good to poultry-breeding in general. Like other things they have their use and abuse, though we are inclined to fear that the latter somewhat preponderates over the former. At any rate, it is well to consider what each is. To take their disadvantages first.

1. The number of very early birds which are now fit to show and likely to be entered is necessarily small, consequently the promoters of exhibitions cannot afford to give separate classes and prizes for each variety, much less can they do so for the different sub-varieties; the result is that several breeds are shown together. Three or four schedules are now lying before us which offer very fair classification for adult poultry, but in which there are but two classes for birds of this year—viz., one for "the best cockerel and pullet, Cochin, Brahma, or Dorking;" the other for the "best cockerel or pullet of any other variety." Imagine the difficulty—we might say the impossibility—of satisfactorily judging in such classes. We need not dilate upon the number of classes into which each of these would be expanded at one of the later and better shows. The fact is self-evident that the choice of prize-winners in a large and good collection of such a miscellaneous lot of varieties must under an indifferent judge go much by chance, and under a good one much by his individual fancy. This is extremely unsatisfactory, and frequently leads, as we have already said, to false hopes on the one hand, or to unnecessary disappointment on the other.

2. We have so often written against the forcing of chickens by overfeeding and stimulants that we are not now going to repeat our remarks on this head. For the perpetuation of a vigorous and hardy race vigorous and hardy birds are necessary, and only those are such which have been reared in a natural way. But to take the fancy of a judge and to command success in a large and miscellaneous class it is almost absolutely necessary that a young pair of birds should be precocious in plumage, with bright and well-developed combs—the very points which those destined to be eventually first-rate ought not at this period to have. Of course an exhibitor wishes to win, and so is tempted to force on his young stock—no difficult thing to do with a fortnight's high feeding—to a state of blooming condition which commands attention. Now and then a very careful judge tries rather to descry the signs

of ultimate merit in undeveloped chicken-like birds than to pick out those at present the largest and most forward. This, however, is very exceptional discernment, and indeed we think on the whole that prizes should be given for birds as they are, and not as they might be.

3. These early chicken shows offer some temptation to the unscrupulous to exhibit late birds of the past year. To what extent this deception is practised we have no means of judging; but, unless we have been much misinformed, there have been yards in which Asiatics have systematically been hatched in October and November to win as chickens at the following summer's shows. We remember the dry remark of a sharp and clever poultryman standing before a stupendous prize Brahma cockerel at an early show: "Ah, he has eaten a good Christmas dinner!" On the other hand, these early shows have their purpose and their use. It is well to know what it is. To produce really fine table poultry by midsummer much care and some skill is necessary. We live in an age of competition, and those who take the pains to do anything well are not satisfied now-a-days with the bare result: they expect to display it to their neighbours. These classes, then, are useful as showing the results of care and judgment in the rearing of spring chickens. We should be very much inclined to confine them to table poultry and to pullets destined for early laying. It is something to know what breed or what cross between two breeds is specially adapted for hatching in winter. Really early spring chickens will always command an extravagant price in the markets of London and large provincial towns. Many a cottager might pay his rent by the production of a few broods, and many a farmer might manage to tide over hard times who would take the trouble to rear three or four hundred spring chickens. Some breeds and some crosses are adapted to this business, and some are not. A good early show of chickens suitable for the table is a great help to one who wishes to select a profitable breed for the purpose. Again, eggs in the late summer, autumn, and early winter are scarce and command a high price. There is consequently some use in learning from what breeds strong and early pullets ready to lay are obtainable. In both cases these birds are not destined to be used as breeding stock; in the one they are killed off as soon as fit, and their runs left to freshen up for another year; in the other they are kept for the production of eggs alone, and are probably killed subsequently. There is, therefore, no harm done by forcing them on.

Breeders of exhibition poultry, on the other hand, we advise, as a general rule, to eschew these early shows; the birds which win at them seldom win afterwards, when laurels are far more valuable, and if kept for breeding stock generally disappoint their owners or purchasers. There are, of course, some ardent fanciers who breed both for early and for late showing, and are not satisfied unless they win all the year round. Those who have space and time thus to indulge their hobby may well do so, but we would remind them not to expect too much from early success, or to be disheartened with early failure. We have known several Crystal Palace and Birmingham cup-winners which had failed to carry home a card from a village show in summer.—C.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1882. July.	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Sun. 23	Inches.	deg.	deg.	S.	deg.	deg.	deg.	deg.	deg.	In.
Mon. 24	29.643	57.8	55.2	S.	60.8	71.9	53.0	124.0	53.0	0.006
Tues. 25	29.763	64.7	56.2	W.	60.7	72.2	52.3	110.7	47.3	0.206
Wed. 26	29.872	57.8	55.0	N.W.	59.9	65.5	51.6	79.7	48.0	0.030
Thurs. 27	30.259	61.1	55.3	N.	59.0	71.3	50.7	127.0	47.7	—
Friday 28	30.469	65.3	57.8	N.W.	59.5	75.5	47.2	119.9	44.3	0.074
Satur. 29	30.364	61.0	57.1	N.W.	60.0	68.5	55.6	81.2	54.6	—
	29.272	61.8	60.0	N.E.	59.9	76.9	54.2	120.3	50.3	—
	30.089	61.4	56.7		60.0	71.7	52.1	109.0	49.3	0.316

REMARKS.

23rd.—Slight showers in morning, afterwards fine and bright with much wind.
 24th.—Heavy showers in forenoon; fine afternoon and evening, but cool.
 25th.—Very dark in west all the early part of day; showery in evening.
 26th.—Fine and bright; windy at first; calm evening.
 27th.—Morning fine and bright; afternoon cloudy.
 28th.—Overcast; very dull and oppressive; fog in evening.
 29th.—Fog in early morning; fine and bright during day; thick again in evening.

Temperature much the same as last week, but air damper.—G. J. SYMONS.



10th	TH	
11th	F	
12th	S	Alexandra Palace Gladioli Show.
13th	SUN	10TH SUNDAY AFTER TRINITY.
14th	M	
15th	TU	Clay Cross, Witney, and Plymouth Shows.
16th	W	Shrewsbury Show. Two days.

GLASS COPINGS FOR GARDEN WALLS.

THE walls surrounding the kitchen garden here are particularly good, being generally about 12 feet high, very substantial, and, considering their age, exactly a century, are in excellent preservation. Altogether, reckoning both sides, a length of 1060 yards are utilised for fruit trees; but of this extent of walls no aspect or space occupied proves half so remunerative as the 36 yards devoted to Apricots. This is entirely owing to a glass coping with the usual blinds or curtains being affixed. There is no mistaking this fact, as on the same south wall, the warmest in the garden, there is a large tree unprotected as far as copings are concerned, and other good trees on south-east and western aspects, which only occasionally produce fruit, while those under the coping have never failed since it was affixed five years ago.

The great value of the coping lies not so much in the fact of its being a sure protection at the blooming period, as it is quite possible to protect nearly as well during an average spring with doubled fish nets, mats, hay or straw bands, Spruce Fir branches, or other available material, but in the almost certain ripening of the growth. We must first secure the bloom, and then protection is a simple matter. How many employers or gardeners could during last season, without the aid of glass, boast of having gathered bushels of fine Apricots? The same thing occurred with a few branches of the tree before mentioned as adjoining the protected trees, these extending about 4 feet under the coping. On these protected branches were developed more blooms, and eventually more fruits, than all the rest of the tree—by no means a small specimen.

I may be in error in ascribing the superior floriferousness of the protected trees to the more perfect ripening of the growth, as it is quite possible the protection afforded during the winter by the coping may have resulted in the transformation of many wood buds into fruit buds. If this is possible, as suggested by "IRISH RECTOR" (page 442, last volume) in the case of Plums and other fruits, it is equally possible and extremely probable in the case of Apricots. During the whole of the winter of 1880 and 1881 the glass was not removed from the iron framework, but last autumn I had it all taken down and packed in the cases provided for that purpose. This spring we had abundance of blooms on the trees under the coping, but the blooms were equally as plentiful on all the unprotected trees. The winter being unusually mild it is very probable the glass, had it not been removed, would not have materially affected the buds, but next winter I hope to test the advisability of removing or retaining the glass. Unfortunately its retention

is apt to encourage red spider during the autumn and to ward off the rain from the border at the base of the wall. It is here where many unprotected fruit trees suffer, as it is seldom sufficient moisture reaches this position; and when it is stated the coping in our case abuts 3 feet from the wall it will be easily understood it is absolutely necessary to continue to water the trees till late in the season or remove the glass. Thanks to our improved arrangements for a good water supply, we can and do easily administer it whenever required, and the engine after the fruit is picked will check the red spider. At the same time I should greatly prefer the latest invention in the way of copings. In this case the glass is fixed to a revolving framework, thus rendering it an easy matter to admit or exclude moisture, being in addition a most undoubted improvement on the laborious practice of taking out and storing and returning the glass, and removes the only objection I have ever heard urged against glass copings.

Another advantage attending the use of copings, and this is very apparent at the present time, is the effect it has upon the ripening and quality of the fruit. Directly under the coping we pick our earliest fruit, and this season, owing to the absence of sunshine, they are clearer in colour and altogether better than the rest of the tree. According to my experience a minimum amount of sunshine does not result in absence of colour in Apricots or Peaches; on the contrary, the former are unusually red, while the Peaches under glass were never better coloured than during this season. Given plenty of light and heat, the latter artificial if you will, and highly yet naturally coloured well-flavoured fruit can be insured. This brings me to another part of my subject. The question has been asked before, and I repeat it, Why build expensive brick or stone garden walls when it is possible to secure more satisfactory returns at a less expense? These great expensive walls after all will not insure crops of fruit, whereas if a few heated or unheated glass houses were built, or even "glass walls" with copings were substituted, valuable crops of fruit of the most delicious quality could almost of a certainty be relied on. Take Pears, for instance. How often does our climate greatly assist in the production of fruit of the best quality on the open walls? Last autumn I saw and tasted a considerable number of Pears, these being grown in presumably favoured districts, but in no one case did I discover any fruit to equal either in appearance or quality those grown by an enthusiastic pomologist on pyramids in an unheated span-roofed glass structure. It is true trees of any description grown entirely under glass must receive almost unlimited supplies of water, and which is not forthcoming in many gardens. At the same time there are hundreds of places where the employers, by a moderate original outlay, could easily overcome this difficulty.

I am not in a position to contrast the respective costs of walls or houses, but I may safely assert the latter is the least costly. To build a substantial wall of the necessary height—not 8 or 9 feet high, as is too often the case, but nearer 12 feet—owing to the amount of labour involved, is a very expensive affair; whereas in this age of machinery and competition glass structures can be cheaply and yet well built. The lights could be made to unhinge, revolve, or slide off, according to the design of the house, thus insuring a moist border and clean foliage at a time when the reverse is often the case—viz., after the crops are perfected. The lights being replaced the house, whether heated or unheated, could be utilised for various pur-

poses during the winter months. I can fancy some of my readers saying, "All this looks very well on paper, but is it practicable?" and again, "What is to shelter our vegetable quarters if we dispense with garden walls?" I can confidently assert the theory (not mine alone, remember) looks still better when reduced to practice, and this there are several who could, if they would, indisputably substantiate. With regard to the vegetable quarters, it has yet to be proved that they really require so much protection; in fact, it is my firm belief they would be much better without it. Why, and also my ideas as to the best arrangements of hardy common fruit trees, I must at present leave.

If, however, a wall must be had, why not make it principally of glass, this to include a good revolving coping? Scarcity of water cannot be urged against this already adopted idea. Dr. Parker of Bath has, I am credibly informed, for several years advocated glass walls, and I also am assured Mr. White of Crediton, Devon, has arranged several, and of which after nine years' experience he can speak most highly. In this case the garden is divided by six of these glass walls, which are constructed as follows:—A brick wall is built about 18 inches high, and on this is fixed the framework, this being about 6 feet high with a coping added. Whether the framework is made of wood or iron I do not know, neither does it much matter, but most probably it is of iron, as Mr. White is a blacksmith. Wires are strained on which to train the trees, and these Dr. Parker holds "conduct the electric fluid that is naturally in the atmosphere to their nourishment." Mr. White's glass walls run from east to west, the south front being occupied by Apricots and Peaches, while on the other side can be grown Pears, Plums, and other fruits. The advantage of substituting glass for bricks is most apparent in the case of the trees on the north side, these getting the benefit of a greater amount of sunshine and light. Such dividing glass walls could be disposed any distance apart, and in the protected compartments thus formed can be grown vegetables or hardy small fruits.

The best substitutes for a brick wall I have yet seen are the unheated houses designed and erected by the late Dr. Newington of Ticehurst, Sussex. These have been fully described and illustrated in the *Journal of Horticulture*, and as managed by Mr. Salcombe, the highly respected and experienced gardener in charge, are most profitable.—W. IGGULDEN.

TUBEROUS BEGONIAS AS BORDER FLOWERS.

FOR several years Tuberous Begonias have been planted in beds and mixed borders here to a considerable extent, and this season more extensively than in any former year, there being sixteen beds of them in various gardens. Not excepting any other species or variety of plant tender or hardy—not even Violas—these Begonias are the only plants that have really done well this season of remarkable wet and absence of sunshine. The month of July alone gave us nearly 9 inches of rain (there being only two wholly fair days in the month), yet the more it rains the fresher and the brighter Begonias look; and at the present date (August 1st) amid torrents of rain they are a mass of bloom, while all hardy and tender-flowering plants look very poor, and vegetables being spoilt with wet. Begonias must therefore be regarded as very well adapted for wet localities, and we also found them do exceedingly well in the (here) dry and warm summer of 1880. On this account they are superseding Pelargoniums, and can be managed with much less labour, as a pinch of seed sown in spring with proper treatment gives plants large enough for beds and borders the same season. Then the tubers can be lifted, potted in damp soil, and placed in any cool shed till March, when they can be removed to cold frames, and from thence into the borders without being potted.—D. THOMSON.

THE LONGLEAT VINES.

So "J. S. W." would give me the honour of being one of his disciples in the matter of training and pruning, and quotes directions which he gave two years ago on the subject. He further says "it can afford them"—i.e., himself and his co-workers, "nothing but gratification to hear of that success" which has followed the carrying-out of his system. Now all this would be very flattering to me, only it so happens that in my essay I was describing what took place in 1871, and his directions appeared nine years later. My essay was written entirely without refer-

ences with the exception of two or three back numbers of this Journal containing my writings, and I am not aware that I ever saw the passages in question written by "J. S. W.," whom I may be permitted to refer to as Mr. J. Simpson of Wortley Gardens, Sheffield, till he sent me a note on the subject through the medium of the Editor. That similar ideas should be found here and there to those which other people have written is not very marvellous, but I wonder which Mr. Simpson would think is the most troublesome to one who like myself may claim to be both a practical writer and practical worker—to garble the passages written by another, or to write off-hand my own ideas and experiences.

That I should "discuss the merits of young Vine rods 12 feet long" is not to be wondered at, when it will be seen on reference to the preceding chapters I have distinctly stated that the arrangement "left not more than 12 feet for the younger Vines to run without overlapping their elder brethren," and in the Journal of March 2nd I state that the young Vines were cut to "about 12 feet." That I should mention 60 feet is also not very marvellous when it is remembered that two of the compartments are each 80 by 30 feet, and that there is a Vine near each corner running generally half the length of the compartment, and then partly or wholly across it.

My practice is to do all composition in shorthand, which enables me to write nearly as fast as I can think, and makes me altogether independent of Mr. Simpson or any other writer when I am simply describing my own work and expressing my own ideas. These shorthand notes are preserved, and are produceable. They can be made out by an expert in Pitman's style, and, with the exception of a few corrections made during transposition, are word for word the same as have appeared in the Journal.

It appears to me that Mr. Simpson is one of those unfortunate people who imagine they have invented and described everything that is good, and that every other person is incapable of doing anything higher than copying or imitating them. This form of hallucination almost amounts to a disease, and those afflicted with it are much to be pitied.

By his opening remarks I gather that he lays claim to having introduced what is called the extension system of growing Vines and other fruit-bearing plants. Now as this is the most natural system it is reasonable to suppose it is the most ancient one, and I may tell him as an indisputable fact that it was practised long before he was born—even, I have no doubt, at Wortley.

At parallel columns your correspondent is certainly an adept, and I have no doubt that were Mr. Barnum to write an essay on rearing elephants Mr. Simpson would be able to find some passages which had been borrowed from his own writings, especially if he depended on such an everyday term as "more apparent than real." But seriously, these paper parallels are becoming rather stale, and I propose a change to parallels in practice by suggesting that three Grape-growers of public repute be chosen—and that Mr. Simpson shall have a good chance and not be placed at a disadvantage, he may choose them himself—these three gentlemen to carefully examine the Vines at Wortley and at Longleat, and the grower of the second best to pay the expenses of the judges. This, it appears to me, would be more interesting to the public than mere strings of words however cleverly arranged.

If from a feeling of modesty Mr. Simpson should hesitate to select the adjudicators as I have suggested, I am quite willing that they be nominated by the Editor of this Journal.

It is not in consonance with my feelings to issue a challenge of this kind, and I would much prefer the more obscure work of steady improvement in Grape culture; yet Mr. Simpson is so persistent in his own peculiar paper methods, that I feel driven to propose an alternative plan. I now respectfully ask that he cordially concur in the proposed arrangement or what he may say can have no weight, and his tiresome accusations will not be heeded.

The shorthand text of my essay is at the disposal of the Editor.—WM. TAYLOR.

YOUR correspondent, Mr. Taylor, must by this time have ceased to wonder at Job's reflection, "Oh! that mine adversary had written a book!" He will not get much thanks for his trouble, and even I must have my little "peck" at him. The part of his treatise on Vine cultivation which has astonished my incredulous mind is the advice which he gives on manuring a Vine border. He states that his plan consists in the main of giving it "soil passed through dry closets, and also some from a dry-earth urinal, with which is mixed a little wood ashes, and occasionally a few half-inch bones."

Now, I am a firm believer in the fertilising effects of human excreta, but I cannot blind my eyes to the fact that Voelcker's opinion of the trifling value of earth-closet manure is substantially

correct, and if you will allow me I should like to place before your readers, in his own words, what this opinion is. They are taken from his report on the "Composition and Agricultural Value of Earth-closet Manure," published in vol. viii., ss., part 1, of the "Journal of the Royal Agricultural Society of England."

His first analysis is of a sample of earth "which had been used four times in succession, and been dried each time after removal from the earth closet." "It contained about $1\frac{1}{2}$ per cent. of bone phosphate, but only 0.39 per cent. of nitrogen—equal to not quite half per cent. of ammonia, and consequently was not of great fertilising value."

As this sample had been dried with fire heat, which might have caused loss of ammonia, Dr. Voeleker analysed another sample which had been used five times, and had not been dried the last time by fire heat, but "it scarcely contained more nitrogen than the preceding sample, and somewhat less phosphate of lime and potash." As the results of the preceding analysis were disappointing from the agricultural point of view, and "as he was loth to arrive at too unfavourable a view" in this respect, he "thought it well to institute further inquiries before expressing a definite opinion."

He first analysed the dry earth used in the closets of the Wakefield Prison, and found it to be "of the composition of rich garden mould," and then analysed the same earth after it had been used in the closets once, twice, and thrice. Used once the soil gained only 0.06 per cent. of nitrogen, and twice it gained 0.11 per cent., and three times 0.20 per cent.; and "after the soil had been used three times over the total increase of nitrogen amounted to only two-thirds of the small quantity originally present in the soil." The proportionate increase of phosphoric acid in the three samples of earth manure was, as might have been expected, rather larger than that of the nitrogen; but, "after all, the soil in a perfectly dry state, after having been used three times, contained only half per cent. of phosphoric acid." "Half a cwt. of bone dust would supply all the phosphoric acid which was contained in 1 ton of dry soil after it had passed" (not once, as Mr. Taylor's soil had been apparently, but) "three times through the closet."

Dr. Voeleker next refers to some trials by Dr. Gilbert, which fully confirmed his own results. "After using twice," Dr. Gilbert observes, "the soil was not richer than good garden mould." "If," says Dr. Voeleker, "the agricultural value of earth-closet manure is really so low as stated by me, how does it happen, it may be asked naturally, that market gardeners and others who have made trials with this description of manure put a value upon it varying from £1 to £3 a ton? In reply to this very pertinent question, I would say that the high estimate of the value of earth-closet manure does not rest on any solid foundation."

It is true that Mr. Taylor further supplements his supposed efficacy of earth-closet manure (to which a little wood ashes and occasionally a few half-inch bones have been added), with half a pound of Standen's manure to 10 square yards at the time of flowering, but I must be permitted to doubt whether, even with this help, a better system of manuring may not be employed for Vine borders. What does "SINGLE-HANDED" say?—INQUIRER.

NOTES ON ROSES.

As the soil in the garden of "NOVICE" is a good clay, in all probability Roses would succeed better if budded on the seedling Briar, as this stock delights in a cool moist soil. The reason why Madame Comtesse de Serenye Rose has not opened a flower during the last three years in the garden of "NOVICE" is because his good clay soil has been well manured. All Roses that produce flowers very large and full of petals which are thin and flimsy, are forced by over-culture to put forth such large buds that the slightest moisture, even a heavy dew, will cause the outer petals to stick together so firmly that the buds cannot open. There are several Roses which have this bad habit—namely Comtesse de Serenye, Capitaine Christy, Duchesse de Vallombrosa, Madame Marie Finger, Princess Beatrice, Madame Lacharme, and Souvenir de la Malmaison. With the exception of Madame Lacharme all these Roses will open here during wet weather if they have not been manured with stable manure. My gardener knows their weaknesses far too well to give them anything that would injure their health.

Three years ago Capitaine Christy manured scarcely opened a flower; this year, after having been left unmanured for two years, this Rose opened well several grand flowers, two of which remained open a week and endured two days of continuous heavy rain with scarcely any injury. My gardener gives them a Potato manure prepared by a London Co-operative Society, and occasionally some weak liquid manure, and these are quite sufficient to preserve them in health. "NOVICE" is perhaps not

aware that the very darkest Roses fade very soon, almost before they are fully expanded, and both sun and moisture seem to injure their blooms. The very best very dark Rose is, I think, an old Rose, which has been struck out of the catalogues of late years, but which was known by the name of Deuil de Dr. Jamain. I grow this Rose nearly opposite to Monsieur Boncenne, and I consider that, though this latter Rose gives a larger bloom, it is surpassed in every other point by the former.

Prinee Camille de Rohan and Pierre Notting are very dark Roses, but they are disappointing. I should prefer to grow, besides Marie Baumann and Alfred Colomb, A. K. Williams, Annie Wood, Charles Lefebvre, Countess of Rosebery, Fisher Holmes, Sir Garnet Wolseley, Harrison Weir, François Lacharme, Mons. E. Y. Teas, Lord Macaulay, Mdle. Marie Rady, Mons. Etienne Levet, Louis Van Houtte, and Senateur Vaissé; and for light-coloured varieties—Capitaine Christy, Mabel Morrison, Mdle. Bonnaire, Baronne de Rothschild, Madame Eugénie Verdier, La France, Boule de Neige, Madame Gabriel Luizet, Princess Mary of Cambridge, and Louise Darzen, and not omitting that exquisite summer Rose, Rose Celestial, and the Bourbon Emotion.—C. M.

NEWPORT AND COUNTY HORTICULTURAL SOCIETY.

AUGUST 3RD.

THE eighth annual Exhibition of this popular and deserving Society was held in the King's Hill Fields, and was in every way a decided success, the quality of the exhibits being superior to anything shown in previous years, while the weather was all that could be desired. Three large tents were set apart for the plants, fruits, and flowers staged in competition, and the whole of the arrangements were admirably carried out by the Committee and Messrs. Cox and Payne, the Honorary Secretaries.

Stove and Greenhouse Plants in Flower.—In this class the competition for first prize lay between the exhibits of Mr. R. Wattie, gardener to J. Cordes, Esq., Brynglas near Newport, and Mr. J. Cypher of Cheltenham, and notwithstanding that the latter has carried all before him both in London and the provinces, he was defeated by Mr. Wattie, who staged a grand collection of the following:—Allamanda Schottii, covered with bloom; Stephanotis floribunda, very fine; Clerodendron Balfourianum, Statice profusa, Dipladenia Brearleyana, magnificently bloomed; a grand Kalosanthes coccinea, Allamanda nobilis, and a superb Erica retorta major about 7 feet through, one mass of bloom. Mr. Cypher staged handsome plants, but smaller than Mr. Cordes', and took second prize with Erica Irbyana, Ixora Williamsii finely bloomed, Allamanda Hendersonii, Erica Aitoniana, Clerodendron Balfourianum very good, Allamanda nobilis, Anthurium Schertzerianum, and Erica Candolleana. In the amateurs' class Mr. Cordes was awarded first prize with fine specimens of Dipladenia amabilis very good, Eucharis amazonica, Statice imbricata, and a seedling Dipladenia named Wattiana. It is of a blush-white tint. Mr. J. Watts, gardener to E. J. Grice, Esq., was placed second.

Fine-foliage Plants.—In this class there was a close contest for first honours, and so even were the plants from Mr. Cordes and Mr. Cypher that the Judges were a long time before they could make their award, and even then they could not do so without calling in a third. At last, however, they gave the preference to Mr. Cypher's. He had fine examples of Cycas revoluta, Croton Sansevieria, Pritchardia pacifica, Croton Queen Victoria, Kentia Fosteriana, Cordyline indivisa. Mr. Cordes' collection included Croton angustifolius, Hyophorbe Verschaffeltii, Gleichenia dicarpa, Coeos Weddelliana, Latania borbonica, and Croton Weismannii.

Mr. Cordes secured the first prize for six exotic Ferns; H. J. Davis, Esq., took the first prize for well-grown Lycopods. Fuchsias were well shown by Mr. B. Evans and Mr. H. J. Davis. There was a splendid show of Roses in the open class, J. Pulley, Esq., M.P., Hereford, being first; and Mr. W. Earle, Farmwood Nurseries, second.

Fruit was also well shown by Sir G. Smythe, J. A. Rolls, Esq., M.P., J. Cordes, Esq., and C. Bailey, Esq.

SUCCESSFUL HYBRIDISING.

PASSING through the houses in the nursery at Messrs. Veitch and Sons at Chelsea, and observing that many plants were referred to as "Seden's," it occurred to me that if a list of all the plants raised by this hybridiser was obtained it would show an excellent record, and it has. Workers such as Mr. Seden should not always labour in obscurity, but should have, as they justly merit, some public recognition. Prizes are provided now-a-days most prodigally for cultivators, and there appear to be no honours at disposal for creators of plants; but the raisers, it must be remembered, are cultivators too, or they could not guide their seedlings to maturity, and far greater skill and closer attention, with much greater and prolonged watchfulness, are necessary in growing, say Orchids, from the germination of the seeds to the flowering of the plants, than are requisite in producing fine specimens for exhibition after the plants have been established. Yet for the workers in horticulture first referred to—delicate mani-

pulators and skilled cultivators—public awards are not bestowed nearly so generously as it appears meet they should be. Probably, however, this is because the magnitude of their work is not appreciated because not seen in the aggregate, or in the form in which the labours of one worker will now be presented.

SEEDLINGS RAISED BY MR. JOHN SEDEN AT MESSRS. JAMES VEITCH & SONS' NURSERIES, CHELSEA, FROM 1866 TO 1881.

NAME OF SEEDLING.	SEED PARENT.	POLLEN PARENT.
<i>Cattleya Mendellii</i>	<i>C. speciosissima</i>	<i>C. Devonicensis</i>
* <i>Marstersoniae</i>	<i>Loddigesii</i>	<i>labiata</i>
* <i>fausta</i>	"	<i>exoniensis</i>
<i>radicans</i>	"	"
<i>superba</i>	"	"
<i>alba</i>	"	"
<i>aurea</i>	"	"
<i>crispa</i>	"	"
<i>delicata</i>	"	"
The above seven varieties are all from one pod of seed.		
* <i>Cattleya Chamberlainii</i>	<i>C. Leopoldii</i>	<i>C. Dowiana</i>
* <i>Calanthe Sedenii</i>	<i>C. Veitchii</i>	<i>C. vestita</i>
* <i>Chysis Chelsonii</i>	<i>C. bractescens</i>	<i>C. aurea</i>
<i>Sedenii</i>	<i>Limminghi</i>	<i>bractescens</i>
* <i>Cypripedium Sedenii</i>	<i>C. Schlimii</i>	<i>C. longifolium</i>
<i>Sedenii</i>	<i>longifolium</i>	<i>Schlimii</i>
<i>Marshallinum</i>	<i>venustum pardinum</i>	<i>concolor</i>
* <i>Scelligerum</i>	<i>barbatum</i>	<i>laevigatum</i>
* <i>major</i>	"	"
<i>curyandrum</i>	"	<i>Stonei</i>
<i>tessellatum</i>	"	<i>concolor</i>
<i>porphyreum</i>	"	"
* <i>cenanthum</i>	<i>Harrisianum</i>	<i>insignis Maulei</i>
* <i>superciliare</i>	<i>barbatum</i>	<i>Veitchii</i>
* <i>marmorophyllum</i>	<i>Hookeræ</i>	<i>barbatum</i>
* <i>albopurpureum</i>	<i>Schlimii</i>	<i>Dominii</i>
* <i>porphyrenum</i>	<i>Roezii</i>	<i>Schlimii</i>
* <i>calanthum</i>	<i>biflorum</i>	<i>Lowii</i>
<i>vernixium</i>	<i>Argus</i>	<i>villosum</i>
<i>porphyrospilum</i>	<i>Lowii</i>	<i>Hookeræ</i>
* <i>Morganiae</i>	<i>Veitchii</i>	<i>Stonei</i>
* <i>Calurum</i>	<i>longifolium</i>	<i>Sedenii</i>
* <i>grande</i>	<i>Roezii</i>	<i>candatum</i>
<i>nitens</i>	<i>villosum</i>	<i>insignis Maulei</i>
<i>pycnoptrum</i>	<i>venustum</i>	<i>Lowii</i>
<i>lucidum</i>	<i>villosum</i>	"
<i>microchilum</i>	<i>niveum</i>	<i>Druryi</i>
<i>Dendrobium endocharis</i>	<i>D. japonicum</i>	<i>D. heterocarpum</i>
<i>rhodostoma</i>	<i>Huttonii</i>	<i>sanguinolentum</i>
* <i>splendidissimum</i>	<i>heterocarpum</i>	<i>macrophyllum</i>
<i>micans</i>	<i>Wardianum</i>	<i>lituiflorum</i>
<i>Laelia callistoglossa</i>	<i>L. purpurata</i>	<i>Cattleya gigas</i>
* <i>flammea</i>	<i>cinnabarina</i>	<i>Laelia Pilcherii</i>
<i>Sedenii</i>	<i>Cattleya superba</i>	<i>Devoniensis</i>
* <i>Philbrickiana</i>	<i>Aclandiae</i>	<i>elegans</i>
<i>Masdevallia Chelsonii</i>	<i>M. amabilis</i>	<i>M. Veitchii</i>
<i>Phaius irroratus purpureus</i>	<i>P. grandifolius</i>	<i>Calanthe vestita</i>
<i>Zygopetalum Sedenii</i>	<i>Z. maxillare</i>	<i>Z. Mackayii</i>
* <i>Nepenthes Sedenii</i>	<i>N. distillatoria</i>	<i>N. species</i>
* <i>Chelsonii</i>	<i>Dominii</i>	<i>Hookeræ</i>
* <i>Alocasia Sedenii</i>	<i>A. Lowii</i>	<i>A. metallica</i>
<i>Chelsonii</i>	<i>macrorhiza</i>	"
* <i>intermedia</i>	<i>longifolia</i>	<i>Veitchii</i>
<i>hybrida magnifica</i>	<i>Lowii</i>	"
* <i>Caladium Chelsonii</i>	<i>C. Wightii</i>	<i>C. Chantinii</i>
* <i>Amaryllis Brilliant</i>	<i>A. Ackermannii pulcherrima</i>	<i>A. pardinum</i>
* <i>Chelsonii</i>	"	"
<i>maculata</i>	"	"
* <i>Begonia Sedenii</i>	<i>B. boliviensis</i>	<i>B. species</i>
* <i>intermedia</i>	"	<i>Veitchii</i>
* <i>Chelsonii</i>	"	<i>Sedenii</i>
* <i>Stella</i>	<i>Sedenii</i>	<i>Veitchii</i>
* <i>Vesuvius</i>	<i>Clarkei</i>	<i>Sedenii</i>
* <i>Excelsior</i>	<i>Chelsonii</i>	<i>cinnabarina</i>
* <i>Model</i>	<i>Sedenii</i>	<i>Pearcei</i>
* <i>Acme</i>	<i>intermedia</i>	<i>Sedenii</i>
* <i>Monarch</i>	<i>Sedenii</i>	<i>intermedia</i>
* <i>Mrs. Charles Scorer</i>	<i>Viscountess Doneraile</i>	<i>Sedling</i>
* <i>Emperor</i>	<i>Clarkei</i>	<i>Chelsonii</i>
<i>Kallista</i>	<i>Sedenii</i>	<i>Stella</i>
* <i>Viscountess Doneraile</i>	<i>Monarch</i>	<i>Sedenii</i>
* <i>Queen of Whites</i>	<i>intercrossing of light varieties of B. rosea</i>	<i>Davisii</i>
<i>Admiration</i>	<i>excelsior</i>	<i>Sedling</i>
<i>rosea superba</i>	<i>rosea</i>	"
* <i>Miss Constance Veitch</i>	<i>Davisii</i>	"
* <i>Mrs. A. Potts</i>	"	"
* <i>Mrs. Bennett</i>	"	"
* <i>Echeveria glauca metallica</i>	<i>E. secunda</i>	<i>E. metallica</i>

To the above must be added the following Gloxinias from the parentage of Magnet, Sir Hugo, and Madame de Smet—*Gloxinia Gamos*, **Prince Leopold*, **Marquis of Lorne*, **Mr. Haines*, **Miss Hannah de Rothschild*, **Madame Patti*, **Prince Arthur*, **The Hon. Mrs. York*, **Aurora*, **Magnet Improved*, **Sunshine*.

Mr. Seden is thus the originator of eighty-eight plants, fifty of which, as indicated by asterisks, have been honoured with first-class certificates, while in addition silver medals have been granted for *Begonia Sedenii* and *Alocasia Sedenii*, and a gold medal to *A. intermedia*. The question naturally arises, If the plants are worthy of the above high marks of recognition, surely the raiser of them ought not to remain ignored by, say, the Royal Horticultural Society, whose object is the promotion of horti-

culture by a system of awards to those who are worthy of recognition. But if the practice is considered of rewarding raisers and introducers of plants, the Council will ask where they are to commence and where to stop. On this point it may be submitted that they will not be frittering away their resources if they commence at the granting of fifty first-class certificates, and never stop granting medals to those who accomplish that proud feat in horticulture.—J. WRIGHT.

NOTES ON PROPAGATING BEDDING PLANTS.

A PERIOD has arrived when the propagation of many outdoor decorative plants calls for attention, and though little that is fresh can be enunciated on a subject which has been the familiar work of gardeners for many years, a few practical notes may not be unacceptable to your younger readers. Beginning with *Pelargoniums*, I may repeat the old lesson that the earlier in August the cuttings are taken the better. However, to those who, like myself, are hindered from interfering with the beds until September, when the certainty with which a strike is secured in August is liable to a considerable discount from losses unless a different process is followed, a statement of the means we find necessary to root the cuttings successfully at that time may be of use. There are two main particulars rigidly followed. One is to employ large cuttings, the other to have lights ready to place over the stock at any time necessary to do so. Both of these requirements are not always available. At one time I could command neither, but an effort procured me the first, and time brought the other. I have been laughed at on account of these large cuttings and the large plants in 5-inch pots the following spring; but the laugh was on my side when the plants came to be put out, and later on when the beds were filled with plants in flower when others were just beginning to make growth, and, especially when the recurring season of propagation came round, when I could without fear of destroying the effect of the beds secure my large cuttings at a time when others had to be content with the tips of the shoots and obliged to mutilate the whole bed. In taking the cuttings they are selected so as to thin out the plants, the cuttings themselves being cut below a joint so as to save any further work in preparation, and as a matter of course the base of the cutting is considerably hardened. A day is allowed to intervene between taking the cuttings and dibbling them into boxes. This is of importance, as the base of the cutting is so far dried as to strike almost surely under conditions where otherwise losses would occur. A cool, not too airy shed is a good place to keep them at this time. If the boxes are kept for a few days in the same place before standing out it is of advantage. One good watering must be given when the boxes are placed outdoors in a sunny position; but until roots are formed water does harm.

There are two ways of wintering the plants—the one to keep the soil in a dry condition and the temperature low enough to stop all growth; the other to keep the plants slowly growing. Little water at the roots is required for this, and a very slightly higher temperature than in the other case. If it is necessary to keep the green-leaved section in a condition at rest, the variegated kinds at least should be kept growing. *Coleuses*, *Iresines*, and *Alternantheras* we prefer from cuttings struck now. The first-mentioned is struck in small pots and wintered therein, the others in boxes. The *Iresine* roots well enough in an ordinary frame kept close, the others require a little heat; they winter best kept slowly growing. *Verbenas*, *Ageratums*, and others of that class do well in boxes placed in frames shaded from sunshine. If left till September it is advisable to employ heat in order to have them thoroughly established before winter. *Verbenas* in particular require to be kept growing all through the winter, in order to have them strong and healthy, and capable of producing good cuttings when wanted in spring.

It is not a good plan to raise *Lobelias* from cuttings at this time, a few plants saved through the summer being by far the most satisfactory way of continuing the stock. However, if cuttings must be depended on means should be taken to induce young growths to push up, and if possible to form roots before taking them off. Unless young and healthy, *Lobelias* will not strike root just now. The easily cultivated *Violas*, if produced from cuttings, should be inserted at once, so as to have roots before winter. Plants over a twelvemonth old produce many young growths, which may be removed later on with roots attached. Last November we propagated a large number by taking up old plants, pulling them into single slips of young growth, and dibbling them into cold frames thickly in a soil made of decayed leaves. *Pentstemons* make grand plants for the flower garden if properly managed. The cuttings should be taken in July, but

they will succeed even yet, though no time is to be lost now, as late cuttings sometimes do not root until the following spring. The difference between the two modes of cultivating when the plants are seen together is surprising. We dibble them into frames, and when rooted pot them, and winter them plunged in cold frames. Calceolarias we never insert before November. A layer of decayed manure is placed on a hard bottom, 3 inches of soil above that, the plants dibbled in, and the sashes kept close until roots are formed; the lights are then kept off in all favourable weather. By the beginning of April the rooted plants are transferred to their quarters in the garden, and forming good flowering plants by the beginning of July or earlier.—A NOR-EASTER.

SILKWORMS AND SILKWORM REARING.—13.

(Continued from page 63.)

ABOUT thirty-five years ago, when a "Chinese Junk" that had arrived safely in the port of London was for the time an object of general interest, the many visitors thereto were solicited to buy a variety of Chinese articles, some of which had crossed the ocean in the junk, but some in all probability had not. Amongst the articles offered there were five hundred glass cases of insects (more or less) containing butterflies, beetles, and a few insects of other tribes: many of the cases had specimens of the lantern fly. Most of the cases had a double layer of insects, butterflies or moths forming the lower one. Above these were species, beetles, flies, &c., upon tall pins, which were not unfrequently barbarously run through the wings of the plumaged insects. A large proportion of the cases had as their centre a pair of huge moths, concerning which at that time very little was known in Britain. Some collectors, indeed, regarded these as well worth the 5s. charged then for the cases and contents. Since, similar showcases of Chinese insects have occasionally arrived here, but of late I have not seen any offered for sale, unless second-hand.

The insect in question, now familiar to naturalists by the name of *Attacus Atlas*, belongs to the group of moths referred to in our preceding article, and we believe it may claim to be the largest moth in the world. It has, however, two types or races. There is a "giant" race, the females of which have wings that expand nearly 11 inches, and a smaller race averaging two-thirds the size. Each has its locality. The Himalayan Mountains have supplied us with examples of the larger form of *Atlas*. The other has been brought from the vicinity of Bangalore. Both doubtless occur in very varied Asiatic districts, notably in China, besides India, also in the isles of the Archipelago. Our figure shows a moderate-sized specimen of the smaller race; scarcely a species belonging to the group is so remarkable for the beauty of the singular "side windows" within the wings, than is *A. Atlas*. It does not appear that, allied though this species is to *A. Cynthia* and to *A. Mylitta* (the Tussur silkworm), the silk produced by it has been much utilised in its native countries; but at the period of the temporary failure of our old friend B. Mori, this insect, amongst others, attracted the notice of those who were investigating the silk-yielding caterpillars. Dr. Chavannes, who made some suggestions concerning the introduction of new species into France, examined cocoons of *A. Atlas* in 1855, and commended the silk as being stronger and thicker even than that of the Mulberry worm. He believed that the cocoon was formed of one thread, which could probably be wound off; but the quantity of floss or loose silk is considerable, and this belongs, like *A. Cynthia*, to the class of open cocoons. Hence the moth extricates itself without either damaging or wetting the shroud of the pupa.

Experiments in rearing *A. Atlas* have been made in Britain by Mr. Philip H. Gosse, F.R.S., and M. Wailly. The latter gentleman has for several years devoted himself to the rearing of a well-selected variety of the silkworms new to Britain. The results of their experiments, so far as they went, have been published in the "Entomologist," where also reference has been made to the energy and perseverance previously shown by M. Braine of Arras in France. He hatched out his first brood of these silkworms during June, 1869, feeding them successfully upon the common Barberry exposed to the sunshine in the open air. Cocoons of *A. Atlas* were shown by M. Braine at the Exposition des Insectes of 1872. His success in rearing was such as to encourage him to make several plantations of Barberries; but the war of 1870 and other circumstances prevented him from prosecuting silk culture in this direction, else it is likely the species might have been acclimatised

in some area of France where its conditions of life would have resembled those of its Asiatic home. Lady Gilbert, an Indian resident, seems to have been the first naturalist who reared one of the caterpillars to maturity during the autumn of 1825.

The egg of *A. Atlas* is not so large as one might expect. It is prettily granulated, and white clouded with purplish-brown. When first out of the egg the young silkworm is black and grey, having conspicuous tubercles of white. There are five moults, *A. Atlas* having thus one more moult than is general amongst the silkworms. At each while in captivity they devour the whole or the greater part of the cast-off skin. After the second moult the silkworm, until full-grown, is clothed with a farina or dust, which may be blown off the skin. Having passed the last moult the silkworm appears of a delicate pea-green, almost white in some examples, the tubercles bluish, here and there tipped with blue-black. In spinning the cocoon one of these silkworms seeks for several leaves which can be drawn together so as to form a convenient hollow. The cocoon is usually secured to a footstalk by a cord of silk. In length it varies from 2 to 3 inches; the colour of the silk is some shade of brown.

Besides the Barberry, the silkworms of this species have been fed upon Apple, Plum, and Peach by several observers, and by Mr. Gosse upon Sallow or Willow. He arranged for his newly hatched worms a saucer with the leaves of nine different plants stuck into damp sand, and found that although they nibbled several species they gave Sallow the preference. Their tardy growth proved a hindrance to success, and nearly all the brood died; the survivors reached their full size after a life of nearly eleven weeks. On the other hand, a person who placed some of



Fig. 22.—Moth of *Attacus Atlas*.

the *Atlas* worms in a plant stove reared about half his hatch within five weeks. M. Wailly found the period of his worms came between these two, but he also lost a part, and this does not seem to be a species easy to rear with us. Sprinkling their food with fine drops of water has been proposed as likely to be beneficial, and also forcing the pupæ slightly, so as to get eggs rather early in the summer, for the winter is passed by the species in the pupal state. Another noteworthy fact is that while young these silkworms are apt to turn cannibals when near each other. On the whole it may be concluded that in Britain this handsome moth and its silkworm are rather to be esteemed as a curiosity than of practical value, but it might be turned to better account in China and India.

Bombyx or *Attacus Cecropia* is a large species allied to *A. Atlas*, and one which has this fact in its favour, that the worms feed upon a variety of plants readily. It is a native of North America, bearing some resemblance to the insect just described, but it is of smaller dimensions. We cannot bestow upon it a high place upon the list of American silkworms. The silk is apparently only to be had by carding, and the cocoon belongs to the group of the open-constructed, a good deal of floss outside, and within layers of strut silk. The moths come forth in June or July, the worms hatch in a few weeks after, and spin up during the autumn. From black at infancy they pass to orange, then to blue, being at length blue and greenish yellow, with an array of tubercles or spines yellowish on the back and white on the sides of the body. Specimens of the cocoon of *A. Cecropia* have been exhibited which had been obtained in England, Belgium, France, Germany, Austria, and

Portugal. These worms have been found to thrive upon either Willow or Poplar, and they are very well satisfied with the leaves of several fruit trees—Plum, Apple, &c. Maple or Elm are less acceptable. A quantity of fertile females were liberated in a wood near London four years ago, but a colony of worms was not established.—J. R. S. C.

MYRTLES.

THOUGH so well known and admired, Myrtles are not so generally cultivated as they should be. Sometimes they are grown as window plants, and they are valuable in the greenhouse and conservatory, and in the open air bushes are always admired. Here there are some good specimens in the open, several plants being 20 feet or more against walls, and their large branches project far out, as, although they are mostly grown against walls for shelter, they are seldom trained on the rigid wall-tree system. It is only in very severe winters they require any protection here, and in most other parts of the country I am sure the weather in spring, summer, and autumn would agree with them well, protection only being needed in winter, and then only when the temperature fell below 32°. Plants which are now becoming too large for pots or boxes might be placed out in spring or about bedding-out time. Previous to planting out they would have to be gradually hardened, otherwise they might look sickly for a time. A moderately rich open soil suits them well, and when once they begin growing they push rapidly on, and soon cover a large space. In dry summer weather we often supply Myrtles out doors with liquid manure, but this only in the case of established plants. Indoors they should only be treated as cool greenhouse plants.

Cuttings may be rooted freely now; a sandy soil and a little bottom heat is needed to do this. In potting them good drainage must be given, and the compost for both young and old plants should consist of loam, a little decayed manure, and plenty of sand. Peat we never use in potting, as we find them do equally as well in loam. In making their growth they should be frequently syringed, as thrips and red spider are very likely to attack them, and this discolours the leaves and sometimes causes them to fall. Established plants, although grown for the greenhouse, may be placed in the open air for several months in the summer, when their space may be given up inside to softwooded plants of various kinds.

As Myrtles when properly treated grow fast, they may be trained into almost any shape; but a free-growing bush showing no trace of cutting or training is as pleasing as any form, but cutting need not be objected to if it is done with the object of securing choice green sprays for mixing with cut flowers, and for this purpose alone Myrtles are well worth cultivating. *M. communis* is the best known, and *M. angustifolia*, *M. latifolia*, *M. flore pleno*, *M. tenuifolia*, and several others compose a good selection.—J. MUIR.

HERBACEOUS PLANTS IN FLOWER.

SINCE writing my notes on the above subject (page 14) so many other plants have come into flower that I am again tempted to contribute a few notes respecting them. Many species that were mentioned previously are still fresh and in good condition, thus proving the value of a good selection of hardy plants. They are not only valuable for outdoor decoration, but where cut flowers are in great demand they are also useful and well adapted for cutting, and many last long in that state.

The genus *Statice* may be mentioned as one of those that last a considerable time after being cut. There are now several species in flower, and amongst the most showy are *Statice Limonium* or Sea Lavender. The flowers vary considerably in colour, being light purple or white. This is a very free-flowering plant, and deserves to be more extensively grown. *S. dahurica* is a much dwarfer plant than the latter, not exceeding 18 inches high, and produces flowers of a light pink colour. It is a plant very suitable for near the front row of the border. *S. elata* is a very handsome species from Siberia, with bright green glabrous foliage. The flowers are blue, and last nearly two months in perfection. *S. densiflora*, *S. occidentalis*, and *S. latifolia* are all worth a place.

Many of the Labiates are now at their best, although the heavy rains that we have experienced lately have not improved them; but still there are plenty in flower, and will doubtless remain in perfection for some time. The dwarf free-flowering *Betonica officinale* and the variety *flore-albo* should certainly find a place, as also should *B. hirsuta* with its dark purple flowers. *Prunella vulgaris* should certainly be planted; large tufts when well flowered are very showy. *P. Webbiana* is dwarfer, producing flower heads of great size. *P. grandiflora* and *P. grandiflora* var. *laeniata* are desirable plants, the foliage of the latter being

finely cut and showing off the dark purple flowers to better advantage. *Nepeta grandiflora* is now flowering profusely, and should find a place in the second or third row in the border. It grows about 3 feet high, and has very showy light purple flowers. *N. maciantha* and *N. longiflora* are worth consideration if sufficient space is at hand.

The Sage family is now well represented. Many of the plants are extremely showy and well suited for the herbaceous borders. The genus *Salvia* is said to contain about four hundred species, being found in most temperate and tropical countries, many of these being strictly tropical, and numbers being not worth cultivating except in botanic gardens. *S. sylvestris* attains the height of 4 feet, and is of bushy habit; it is a very handsome plant when in flower. *S. Sclarea* and *S. Sclarea* var. *bracteata* are amongst the most showy of the hardy species, the bracts being the most conspicuous part. *S. glutinosa* is a hardy European species about 3 feet high; the younger parts are clothed with glandular viscid hairs. *S. sylvestris* forms a bush between 4 and 5 feet high; the flower spikes average a foot long. *S. Horminum* is a very showy plant, and well suited for a position near the edge of the border. The flowers are inconspicuous; the most showy part is the dark purple bracts clustered at the top of the flower spikes. *Thymus Serpyllum* var. *citriodorus* is now one mass of flowers, and although common is extremely ornamental when in flower.

Amongst ornamental-foliage and flowering plants combined the genus *Acanthus* deserves special mention. The leaves are armed with sharp spines, flowers in leafy spikes terminating the stem. *A. spinosus* has deeply cut foliage, which, with the bracts, are very prickly; the flowers are purplish and white, attaining the height of about 3 feet. *A. lucidus* is well worth cultivating, and has bold foliage and large flower spikes. *A. mollis* is a similar plant to the two preceding, but the teeth of the plant, though acute, are not prickly. Of the latter there are two or three well-marked varieties differing from the type chiefly in the colour of the flowers.

In my previous notes I mentioned two or three species of *Veronica* that were then in flower. Since then, however, other species have come into flower that are perhaps more ornamental. The species here mentioned cannot fail to give satisfaction to all who grow them. The pleasing bright blue spikes of flowers are exceedingly useful for cutting. *V. longifolia* is a tall variable plant, producing long dense terminal racemes of blue flowers. *V. longifolia* var. *rosea* with rose-coloured flowers, and *V. longifolia elegans* has pure white flowers, the latter being remarkably fine. *V. incana* var. *neglecta* is a very dwarf-growing species, not exceeding 4 inches high, and produces upright spikes of flowers a foot or more long. *V. virginica*, or Culvers Root, attains the height of 4 to 5 feet; the flowers are pure white with conspicuous yellow anthers. *V. corymbosa* is a useful plant, being intermediate in size, growing about 18 inches high, and producing spikes of purple flowers a foot or more long. *V. spicata* is another variable plant; the typical species produces flower stems from 1 to 2 feet high, and terminated by racemes of bright blue flowers. There are some well-marked varieties producing rose-coloured and white flowers.

Pentstemons are too well known and appreciated to need much comment. There are three or four species, however, that may here be mentioned, such as *P. glandulosum*, which grows about 3 feet high and produces flowers of good size. *P. gentianoides* is a very beautiful species from the higher mountains of Mexico; it grows about 3 or 4 feet high, bearing long leafy panicles of bright violet-blue or scarlet and white flowers. The latter is very distinct, the tube being much longer than in most of the other species. *P. perfoliatum* grows about 4 feet high, and bears flowers lilac and white. *P. Digitalis* is a very distinct tall-growing species, producing pure white flowers, contrasting favourably with some of the other species with more highly coloured flowers.

The *Verbascums* are now finely in flower, and are very effective if judiciously planted in the shrubbery and herbaceous borders. They may be considered by some as coarse common plants, but if care be taken in selecting suitable positions they are by no means to be despised; if planted in the shrubbery they are very effective, reaching 6 or 8 feet in height. *V. phlomoides* and *V. macrum* produce the largest and showiest flowers. There are other species that are not so rank-growing, and are more suitable for the herbaceous border proper.

One of the prettiest plants now in flower in the herbaceous border is *Omphalodes Luciliae*; it has glaucous foliage, and the flowers in shape are much in the way of the Forget-me-not, but larger. This should have a place in every border. The *Boragos* are common, but for a variety one or two plants would not be out of place. *B. officinalis* is the most showy; it is indeed a very

distinct plant, with broad leaves and large blue flowers with conspicuous black anthers. The *Symphytums* come very near the latter, *S. officinale* being the most showy. There is a very fine variegated form that is well worth growing if only for the foliage. *Gilia achilleæfolia* and *G. capitata* deserve a little attention, the latter being useful for cutting purposes, producing light purple heads of flowers.

Of late years much attention has been paid to the *Phloxes*, and well they deserve it, for what border would be complete without some varieties of *P. paniculata*? This handsome species varies in the colours of its flowers from lilac, pink, or purple to white, and being crossed with *P. maculata* has given birth to the numerous fine varieties now in cultivation. *Gentiana asclepiadca* is a remarkably handsome plant, and may be considered as one of the best for borders and general cultivation. The flowers are large and dark blue; it attains the height of about 18 inches. There is a variety with white flowers that is also worth growing. *Erythraea diffusa*, with its *Silene*-like flowers, is a little gem, and is useful for the front line; the flowers are rosy pink, showing well above the foliage. *Asclepias tuberosa* should be grown, for it produces its brilliant flowers nearly all the summer, thus increasing its value. *A. Cornuti* is also worth a place; this is a robust-growing plant 3 or 4 feet high. The flowers are fragrant, dull purple, and larger than the first-named species.

We have now reached one of the most showy and important genera of herbaceous plants—viz., *Campanula*. There are many species in flower, and some are now about their best. *C. pusilla* is of dwarf habit, not exceeding 6 inches high, producing white flowers. It is very suitable for the front of the border; being pure white is a desirable species. *C. carpatica* is another desirable form, and considered to be one of the best of the dwarf section. It produces large open flowers, and being variable many fine varieties are produced with blue, blue and white, and some with pure white flowers. *C. persicifolia* is one of the handsomest, including some very showy double-flowered varieties. If grown in good rich soil it attains the height of 3 feet, and continues to bloom from June till September. *C. coronata* grows between 3 and 4 feet, with purple flowers, and should be included in the list. *C. sarmatica* is a species well worth a place; it grows between 3 and 4 feet high, and is of free habit. *C. pulla* is a little gem. It is of spreading habit, not exceeding 3 or 4 inches high, producing single flowers freely, which rise a few inches above the foliage. Other species that may be recommended are *C. rotundifolia*, *C. latifolia*, *C. turbinata*, *C. glomerata*, *C. garganica*, and *C. rapunculoides*.

Anemone japonica is one of the most useful and effective plants now to be seen in the herbaceous border. The flowers are large rose or white, and last long in perfection. A plant known as *Anemone Honorine Jobert* is a good and distinct variety of *A. japonica*. *Tunica Saxifraga* is a very effective plant when in flower, and is now about its best; it closely approaches *Dianthus*, but is valuable for its free-flowering property. The bright pink flowers are small, but being produced in great profusion and continuing to flower throughout the summer months, should be appreciated by all. *Dianthus Seguieri* is free-flowering, growing about 18 inches high. It is especially noteworthy for the fact that it flowers at a time when the greater part of the other species of *Dianthus* are over for the season. Several species of *Hypericum* are in flower, some of which are great acquisitions, the best being *H. olympicum*, *H. calycinum*, *H. tomentosum*, *H. asperum*, *H. perforatum*, and *H. Androsæmum*. *Calandrinia umbellata* must not be forgotten; it grows about 6 inches high, the crimson flowers being borne in the form of an umbel.

The *Malvas* include several showy and ornamental plants, and are admirable subjects for the shrubbery as well as the herbaceous borders proper. *Malope trifida* and the var. *flore-alba* are showy plants about 3 feet high. *Kitaibelia vitifolia* is a tall-growing plant with handsome foliage, producing the rose or white flowers from the axils of the upper leaves the greater part of the summer. *Althæa rosea* (Hollyhock) needs no comment. *A. officinalis* (Marsh Mallow) is a capital plant for single specimens; plants about 6 feet high and as far through are noble objects. *Lychnis viscaria* is now very handsome, and when seen in masses is most striking. *L. chalcedonica*, although like the last an old garden plant, must not be left out, as for some time past has been one of the greatest ornaments of our borders. There are several varieties of this valuable plant, some with white and rose flowers, also double varieties. *Silene Armeria* is a very conspicuous plant when grown in masses, averaging about 18 inches high. Several species of *Linum* are now very fine. *L. grandiflorum* is one of the handsomest annual species; it grows about 18 inches high, and has beautiful crimson flowers. *L. luteum* should be grown for variety, and *L. narbonne* should also find a place; it has

light purple flowers over an inch across, and when seen flowering in quantity is really a telling plant. The several varieties of *Lythrum salicaria* are great ornaments, and have been all aglow for some time past with their rosy purple flowers. The vars. known as *roseum* and *grandiflorum* are extremely showy, particularly the latter, as it produces finer spikes of flowers than the others; they also prove very useful for cutting.

Many other good plants might be mentioned, such as the *Sca-bious*, *Godetia*, *Epilobiums*, *Sweet Peas*, *Clarkias*, &c. I have not mentioned any of the *Composites* in this paper, although there are many that deserve a word of praise, but perhaps a little later in the season I may contribute a few notes respecting them.—W. K.

A GOOD CROP OF POTATOES.

"A CITY MAN" is right in inferring that at least two or three profits had to be obtained for the Potatoes. I referred to page 77, but he is wrong in supposing the price quoted is too high. Since I have been obliged to market produce no fact has been more forcibly impressed on me than this one—that in order to succeed the best must be done to have your produce fine. It not only makes a difference as to price, but in a crowded market it means a sale or no sale. For example—the last consignment of Potatoes sent to market brought exactly double the price of most of the others in for sale. A different class of purchasers was to be had for ours, and they were willing to pay so much more. To satisfy your correspondent that I have not exaggerated as to price, I wrote to the salesman who acts for me to return the receipts for the week I referred to. I now send them on to you. You will see there were seventy gallons marketed, and the returns, clear of any drawback, were £5 5s. The gallon in question contains twelve imperial quarts, and is therefore two and two-thirds of a bushel, or 21 lbs. in weight; but we find that the gallon always contains over that weight, so that these seventy gallons would be more likely to weigh 15 cwt. than the statute weight of 13½ cwt. I may say that from a crop lifted later we secured a gallon off every 6 to 7 yards, exclusive of seconds and those kept for seed. All our Potato ground is again under crop, from which I expect a further £30 to the acre before the end of the twelve months from planting the Potatoes.—B.

[We do not think "A CITY MAN" doubted the accuracy of your statement, but considered the returns unusually high in comparison with London prices.]

TWO-DAYS ROSE SHOWS.

It is always an unpleasant thing to bring charges of disloyalty against those with whom one has been acting and to point out flagrant inconsistencies; but I have always thought it best to say distinctly what I mean, while, I hope, endeavouring to do so with all courtesy, and I must therefore say that I have beheld with some amazement the prize lists of the Manchester and Birmingham Rose Shows. When I see there the names of the President and many members of Committee of the National Rose Society, and when I recollect the whole history of the Society, the resolutions it has passed and the rules it has laid down, I must confess to a sense of utter amazement at the inconsistencies of which some persons can be guilty, with a light heart too.

When, now some years ago, the circular was issued to which is owing the present existence of the Society, it was distinctly stated in it that one great reason for the need of such a Society was the existence of two-days shows, and one of the resolutions proposed to the meeting was that of discouraging by every means in their power two-days shows. We know what was the condition of Rose-showing then and we know what it is now. I remember well that one or two persons said they would not give a pledge on such matters as two-days shows, but that they would do their best to discourage it. Since then several circumstances have occurred in connection with the subject which ought to be recorded. When the lessees of the Alexandra Palace proposed in 1880 a two-days show very strong remonstrances were made by the Secretaries of the National Rose Society and by some of our prominent growers against it; and the result was that they, with a laudable desire to meet the objections, abandoned their idea and confined it to one day.

When, again, the authorities at Manchester wished the National Rose Society to hold their Exhibition there, a hitch occurred because the Committee insisted on its being confined to one day. It was said it must be a failure if this was insisted on. However it was, and the result was a clear gain of £400. When, again, last year proposals were made about holding the Show at South Kensington the hitch arose, not from unwillingness to hold it there, but because their Rose shows had been for two days, and the Committee of the National Rose Society would not alter their rule. And lastly, when the regulations were drawn up afresh with regard to affiliated societies, it was laid down as a rule that no Society which held a two-days Rose show be affiliated; yet many of those who assisted in all these

cases, who voted in this matter, are found, as far as I know, without any remonstrance quietly helping to swell the exhibition tables of two-days shows.

Now I hold that this is disloyal to the Rose and to the National Rose Society, and against the interests, if they would only see it, of those who are the chief offenders—*i.e.*, the growers for sale. Disloyal I say to the Rose. Has anyone ever seen a box of Roses on the second day without mourning over its draggled and miserable condition?—not a trace of the beauty which so charmed us the day before, and instead of the delicate and delicious fragrance a faint and sickly odour of decay. Nay, does not one call to mind some of those who have thus offended fuming and fretting because the judging was a quarter of an hour late, and declaring that their flowers would not be fit to be seen? And yet—well, the inconsistency of “human nature” is very wonderful. It is disloyal to the Society, for it stultifies its very foundation, it makes its resolutions a farce, and leads to the question, If one rule may be broken why not others?

Then, again, it is against, as I have said, the interests of the growers. If all have benefited by the establishment of the National Rose Society, assuredly the growers for sale have most done so. Let us take the demand for Roses now and compare it with that which existed before the Society was established, or let us see how the culture of the Rose has penetrated into districts where it was unknown before, and the truth of this must be acknowledged. But I wonder who ever received orders from a box of Roses two days old; and must it not be seen that to let flowers for which a sale is expected be seen in this condition is “a mockery, delusion, and a snare?” Let me put one question: Would any of our growers who have a seedling which they wish to sell cut it and expose it to the light, and then at the end of the second day let it be seen?

I have thus pointedly alluded to the growers for sale, not because I think they are greater offenders than the amateurs—all who have taken part in it are “tarred with the same brush,”—but because I believe firmly the remedy lies with them. If those whom we can count on the fingers of one hand were to put their foot down and say, “No, we cannot consistently show at a two-days exhibition,” the thing would be settled. Much as amateurs have done and are doing to make our shows a success, it cannot be doubted that if the long array of boxes which are exhibited in the nurserymen’s classes were absent many shows would be a failure; and I am sure that had they done so in both of the instances to which I have alluded this year they would have gained their point and saved their consistency.

I have not alluded to another reason, although to some it is a matter of no little importance. I mean the additional expense that is entailed by it. Instead of being able to get away the same night they must remain for another, or else leave a man or have their boxes forwarded. Now when an exhibitor has taken a goodly amount of prizes this is all very well; but when one has been unsuccessful or only gained some of the smaller prizes, “the gilt is taken off the gingerbread” when another day’s sojourn is involved or when boxes have to be forwarded afterwards.

I have thus pointed out the disease and suggested the remedy. I have done so in the interest of the Rose and without any personal feeling. I have striven “naught to extenuate or set down aught in malice,” and I can only hope these observations I have made may be taken in the same spirit in which they are offered.—D., *Deal*.

NOTES ON STRAWBERRIES.

SHORTLY after Strawberries commenced ripening this year much fruit was noticed lying on the ground under the plants, and on examination it was apparent that mice had cut off the fruit for the sake of the seeds which they had nibbled out, the fleshy portion being left untouched. Curiously enough the only sort injured was President.

I may say that our most satisfactory varieties are President and Vicomtesse Hericart de Thury. I have tried many kinds of late years, and generally with much dissatisfaction resulting. Helena Gloede I intend to give a further trial. It has been in crop three seasons, and although not very satisfactory, another opportunity of judging its merits will be given. Elton Pine, an old late sort which was discarded, I am going to try again, a crop of it I saw last year in another garden being one of the finest. Pioneer was discarded last year, and Loxford Hall Seedling this; I have been unable to get either to ripen here. Dr. Livingstone has been so strongly pressed on me as a grand variety that a trial will be made of it for the first time.

We have been busy planting out strong-rooted runners lately. This plan I have followed so successfully that I may refer to it again. I send a plant with the soil shaken from the roots to show the kind of thing we obtain by the simple method of rooting the plants between the lines. They are lifted with balls 6 inches across, a mass of roots, and are transferred at once to the quarter set apart for them, being set out in rows 3 feet apart and 2 feet from plant to plant. The ground is just cleared of a crop of Potatoes, the only preparation for the Strawberries being levelling it down with forks. Half an ounce of chemical manure suitable for the Strawberry is worked in round each plant

as it is put out. I may say that I would prefer “SINGLE-HANDED’S” plan were we planting on a small scale, and would strongly recommend those who set out a few hundreds to follow his advice.

One-fifth of an acre is being planted with Strawberries, and notwithstanding the protest of “A NORTHERN GARDENER” the other week, I do not find that it would be advantageous to stop intercropping. Turnips are not a suitable crop, as they require the same dominating manure as do Strawberries, but provided the Turnips are drawn young no harm is done. Lettuces, Endive, Onions, or Spinach do practically no harm. A very slight dressing of nitrate of soda and sulphate of ammonia mixed in equal proportions applied to either of the four vegetables will ensure a good crop. I am taking my latest crop of Lettuces from this quarter, and intend taking the earliest crop of the same vegetable from the same ground next spring.—B.

[Such strong-rooted runners as the example sent, planted in July and well attended to, will produce an excellent crop the first season.]

CHEAP FLOWERS.

AFTER a day spent among pleasant sights and objects of great beauty, some fine statuary, an exhibition of water-colour paintings, an extensive collection of rare works of art, a public garden rich in fine trees, gay flower borders and elaborate carpet beds, the brightest sight of all clinging to the memory with a freshness born of itself was a row of common *Tropæolums* growing in a cottage garden which I passed on my way home. The garden was at an angle of the road enclosed by a low fence, along the inner side of which seed of the *Tropæolum* had evidently been sown in spring; and with the exception of keeping down weeds and slugs, no care or culture had been necessary to bring to perfection a fringe of floral beauty fit to grace the garden of a palace. Foliage was most abundant, forming a background and setting to the blossom that much enhanced its beauty, while both clustered charmingly around the neat white paling. Mine was only a passing glance, taking in the general effect and dwelling upon no colour in particular, and a closer inspection might have shown little variety; yet I may remind your readers that we now have shades of scarlet, yellow, crimson, rose, peach, and white, some ten or twelve in number, all to be had in a 3d. packet of seeds—no slight boon where space under glass cannot be had for wintering bedding plants. Let not the hint be thought untimely because of no avail for this year; now is the time to gain many a similar scrap of knowledge worth keeping for future use.

A packet of Belgian Pansy seed purchased for a shilling and sown last year afforded me some dozens of plants—enough, in fact, to plant a narrow border of Tea Roses along one side of my house, up which the Roses are trained. The plants grew freely, and had some flowers last year. This year they soon filled the entire border, and for months have been one mass of flowers—all beautiful, and considerably varied in colours. An enthusiastic florist who came to see the Rhododendrons in full beauty declared that the Pansy border alone was worthy of a special visit, and was rewarded as he deserved by having cuttings of all of them. It must not, however, be thought that the flowers are florist’s flowers worthy of a place in an exhibition stand; hardly any of the markings were sufficiently regular for that, but they are undeniably rich, varied, and curious.

A row of Sweet Peas upwards of 100 feet long sown last autumn in light rich soil came into bloom in April, and continued in full beauty till the middle of July. They grew 7 feet high and were quite an imposing sight, all the more enjoyable from being near to a path. The hedge of sweet flowers filled the surrounding air with its fragrance, and afforded an inexhaustible supply of cut flowers, of which huge bowlfuls were used for corridors and other similar places. It would, of course, prove somewhat expensive to purchase enough seed for such a row, but I have been gradually extending the length of such rows for some years, and have now enough seed hanging upon this first row alone to sow some dozens of similar ones. Those who have only seen Sweet Peas in the ordinary little clumps can hardly form a true conception of the striking effect of a hedge of them, and every garden might afford space for something of the kind.

A mixed packet of Chinese Pink (*Dianthus sinensis*) sown upon a slight hotbed in March afforded enough plants for two small beds, which are now coming into bloom, large, rich, varied in colour, and abundant. The effect is charming, and tells well among surrounding beds of the ordinary bedding type. The seed bed was a very rude contrivance—a heap of leaves a yard high, four 9-inch boards nailed together for the sides, soil put in to within an inch of the top, the seed sown in rows, and a glass light

laid over it. Among the flowers so raised this year I may mention Carnations, Picotees—those so raised last year are now in bloom—a collection of Everlastings, most of which have produced flowers, which are now cut and dried for winter—Polyanthus, Pyrethrums, Potentillas, of all which there is an ample stock of seedlings; Zinnias, both single and double; Larkspurs, Asters, Nigellas, rare kinds of Papaver, Scabious, just now opening their first flowers, and other familiar annuals and perennials. The heat derived from the bed of leaves is so little that no importance is attached to it; rather is it important to sow in soil raised 2 or 3 feet upon a suitable base, well drained, covered by a glass light, and sheltered from cold winds. The advantages of the plan are abundance of light and air, inducing robust health and sturdy growth.

Need I point the moral? Will it be thought heresy if I assert that gardens may be bright with seasonable flowers the year round without the aid of costly glass houses? A border filled with choice strains of Aquilegias, Campanulas, Sweet Williams, Antirrhinums, Canterbury Bells, Polyanthus, Delphiniums, Lupins, Wallflowers, Stocks, Asters, Phloxes, Oenotheras, Pentstemons, Mignonette, Larkspurs, Hollyhocks, Pinks, and Carnations, all coming under the category of cheap flowers, easily raised from seed, and all answering well under the advantages of a generous soil and careful tending, often proves more attractive than the most costly ribbon border. My favourites may well enough be termed "old-fashioned;" but does not our heart warm to the term, and the mind involuntarily wander back to scenes of youth and to familiar objects cherished, now, alas! but too often in memory alone?—EDWARD LUCKHURST.



AN ESSAY ON THE PELARGONIUM AND ITS CULTIVATION read by Mr. C. E. Pearson of Chilwell before the members of the Nottinghamshire Horticultural and Botanical Society on June 12th of the present year, has been issued in pamphlet form. Attention is chiefly given to the Zonal varieties, the culture of which is fully described, but short select lists of Show, Fancy, and Ivy-leaved varieties are also included. Referring to the name of the genus, Mr. Pearson observes:—"There has been a good deal of confusion amongst non-botanical people between Pelargonium and Geranium, in consequence of these plants being called scarlet Geraniums, bedding Geraniums, &c.; the fact is, they are not Geraniums, but Zonal Pelargoniums, though belong to the Geranium family. Most of the Geraniums are hardy herbaceous plants, dying down in winter, several of them being amongst our native wild flowers. The best known, perhaps, are the blue Geranium found in moist meadows (*Geranium pratense*), and the small pink one which is found in every hedgerow, *Geranium Robertianum*, or, as it is commonly called, the Stinking Cranesbill. The easiest method of distinguishing the two families is by the flowers; in the Pelargonium the parts of the calyx unite to form a tube, easily found by cutting through the flower-stalk. If the Geranium be treated in the same way it will be found to be solid."

— AN Exhibition has just been held in Sherwood Park of the FRANT COTTAGERS' ASSOCIATION. This organisation, we are informed, has been of great benefit for those for whom it was established, and that the Shows are appreciated is evident from the fact that at the one in question there were five hundred competitors. Upwards of 350 prizes were provided for flowers, fruits, vegetables, neatest cottage gardens (in parishes, districts, and on estates), poultry, pigeons, geese, turkeys, rabbits, canaries, cats, bees, needlework, darning, bread-making, butter-making, and writing. We are glad to see the Society is supported by the resident gentry; and the Committee and Mr. Ware, the Secretary, are to be complimented on their labours in a work that is calculated to improve the condition of the industrial classes in those districts in which it is carried out.

— MESSRS. J. CARTER & Co., High Holborn, have now a magnificent display of PETUNIAS AT PERRY HILL, comprising over fourteen thousand plants, and representing a large number of beautiful varieties both single and double. The colours are extremely varied; from the richest crimson to the most delicate rose and pure white there is every gradation. In form, too, there is great variety, some being scalloped or fringed at the margins, others are quite even and regular. The markings also differ considerably, and there are several very distinct types. Some have a clearly defined white centre, the other portion of the corolla being coloured; some are evenly striped, and others are irregularly streaked and blotched. The double flowers are remarkable for their great size and fulness, while all the plants are characterised by a dwarf, compact, yet vigorous habit that is most satisfactory.

— A CORRESPONDENT writes as follows respecting SALVIA FARINOSA:—"This is a most beautiful blue-flowered species, the spikes of which when cut continue to open flowers for a long time. It is not hardy, but is very useful for planting in borders during the summer months. In habit the plant is erect, with ovate-lanceolate leaves, and its flowers in terminal spikes are of the brightest lavender blue. Another rare species flowered recently in the greenhouse, but of the same tint as *S. patens*. It is called *S. chamaedrifolia*, and makes a well-formed pot plant, freely flowering in neat spikes during summer when variety is often much wanted. Both these are grown in the Cambridge Botanic Garden, where a large number of the tender species are cultivated."

— ONE of our prettiest British species of St. John's Wort is *HYPERICUM UNDULATUM* (some regard it as a variety of *H. quadrangulum*). It is 8 inches or a foot high, with erect stems bearing small leaves, and is rendered extremely elegant by the numerous red buds, which are intermixed with bright yellow flowers. It is well worth a place in the garden. It is found growing wild near Plymouth and in Cornwall.

— "J. R. S. C." writes:—"I read with special interest the communications in the last issue of the Journal anent the STRAWBERRY-EATING BEETLES. My entomological friends cannot make it out at all; it is quite contrary to all theories that Carabi should act thus, unless their natural food run short, which could not be the case this season. However, the fact seems well authenticated. Mr. Cornhill of Byfleet speaks of several species being noticed, allied to each other he thinks. I should like to see samples of the smaller beetles he mentions, perhaps not a Carabus but an *Otorhynchus*. The weevils of that genus have been taken about Strawberry beds."

— MESSRS. H. CANNELL & SONS, Swanley, have sent us some very handsome blooms of PENTSTEMONS, extremely varied and bright in colour, of great size, and good form. Scarlet of various shades, crimson, purple, rose, and white are represented, some of the hues being particularly brilliant. In several cases the blooms are quite bell-shaped, and even in outline suggestive of small Gloxinias; some also have a white throat, with the outside of the tube purple or crimson, the same colour forming a regular margin round the lobes of the corolla; in others the throat is heavily streaked with colour. They indicate a strain of considerable merit obtained by careful selection.

— "B. S." writes:—"Now that Mr. Taylor has finished his history of the VINES AT LONGLEAT I desire to tender him my best thanks for the most valuable information he has given from beginning to end. I have gained much valuable instruction."

— ON the opening day of the British Bee-keepers' Association's Exhibition at South Kensington last week Messrs. J. Carter and Co., Holborn, contributed a large COLLECTION OF TOMATOES IN POTS, representing many excellent varieties. About three

dozen plants were staged in pots 10 inches in diameter, and some of the specimens were bearing good crops of fruit. Such well-known varieties as Hathaway's Excelsior and Trophy were particularly good, other noteworthy varieties being Dedham Favourite, Abundance, Nisbett's Victoria, Royal Cluster, and Red Currant.

— AT the same Exhibition Messrs. Sutton & Sons' SPECIAL PRIZES FOR MELONS AND CUCUMBERS were competed for. Two collections were staged, the premier award being secured by Mr. G. Goldsmith, Hollenden, Tonbridge, who staged fine fruits of the Melon Suttons' Hero of Lockinge well coloured and beautifully netted, and Suttons' Hero of Bath also in good condition. The Cucumbers were Suttons' Improved Telegraph and Marquis of Lorne, even and fresh. Mr. G. Steggles, gardener to A. W. Green, Esq., Faulkner's House, Hadlow, Tonbridge, was placed second with good examples of Hero of Lockinge and Victory of Bristol Melons, Duke of Connaught and Improved Telegraph being the Cucumbers shown in the same collection.

— A CHARMING little red-fruited shrub is RIBES OPULIFOLIUM. It forms a dense round shrub of moderate growth with pretty foliage, and is covered all over with berries in short racemes, in colour deeper than the Red Currant, and as ornamental as those of the Mezereum. They are quite insipid, and of no value for culinary purposes.

— A CORRESPONDENT informs us that "The NORTHENDEN FLORAL AND HORTICULTURAL SOCIETY'S EXHIBITION held last Saturday in Wythenshawe Park, was a great success, all the classes being well represented, though the majority were only confined to gardeners and amateurs in the district. Mr. W. Neild, gardener to W. Tatton, Esq.; Mr. G. Coulson, gardener to H. Schill, Esq.; Mr. Jackson, gardener to the Rev. E. L. Y. Deacle, were some of the leading prizetakers. A collection of thirty-nine species and varieties of grasses collected in the district, neatly labelled and tastefully arranged, deservedly secured Mr. T. Entwistle of Didsbury the first prize in that class, and were much admired."

— MR. ROBERT WARNER, Broomfield, Chelmsford, writes:—"In the spring of this year for several weeks your paper contained articles on WASPS, one stating that when many queen wasps were seen early or in spring time such a circumstance did not prove that there would be many wasps in the autumn. My gardeners state they never knew so many queen wasps in spring and such a dearth of wasps now. Gooseberries are over, plenty of Plums are ready for them, and yet at present not a single wasp has been seen. Will your readers kindly state in your paper their experience this year?"

— MR. W. CONNELLY, The Gardens, Leagram Hall, near Preston, writes:—"The EARLY POTATO CROP is unusually good here this season, especially the kidneys. We have large, clean, smooth tubers, and plenty of them, but the disease is spreading very rapidly. I have dishaulmed all those that are not quite ready for lifting—a remedy that goes a long way to save the crop if done before the disease reaches the tubers. The late kinds are also looking well, particularly the Magnum Bonums, and as yet quite free from the disease; but I am afraid they will not be free long, especially if the heavy rains which we have had lately continue much longer."

— WE are requested to note that on the 2nd inst. the firm of THOMAS GREEN & SON (Limited), Smithfield Ironworks, Leeds, held the third annual meeting of the Shareholders at the offices of the Company, 96, North Street, Leeds. Mr. Green, Governing Director, nominating Mr. W. Baxter to the chair. The Chairman, in moving the adoption of the last balance sheet, said that during the three years the Company had been in existence

they had paid a dividend of 26 per cent., in addition to which they had written off nearly £6000 by way of depreciation of plant and freehold. They had every prospect of an equally successful year. He also stated that the Company were now removing from their old premises in Blackfriars Road, London, the lease of which expires next year, to those larger and more commodious premises formerly known as the Surrey Chapel. After some further observations the Chairman proposed that a dividend at the rate of 10 per cent. for the year 1881 be declared upon the capital of the Company, to be paid on the 1st of September, free of income tax. This was seconded by Mr. T. W. Green, and carried. Messrs. T. B. Jones & Co. of Albion Place, Leeds, were re-appointed auditors. The Chairman proposed the re-election of Mr. Hebblethwaite as a Director on his retirement by rotation. Mr. Thos. Green seconded it, and it was carried. The meeting then terminated.

LILIUMS.

YOUR correspondent "C. P. P." in last week's Journal desires to know the management of *Lilium lancifolium* and *L. umbellatum* after flowering in pots. We do not grow *L. umbellatum*, but have succeeded very well with *L. lancifolium* and others. The way they are treated is as follows:—After flowering they are placed outside on an ash border till the bulbs are ripe, water being gradually withheld. The bulbs are then taken out of the pots, all decayed matter picked off them, and repotted. The soil used is loam and sand, with a little leaf soil added. If the pots are the same size as we use—namely, 8 inches and 10 inches, a space of about 2½ inches or 3 inches should be left for top-dressing with loam and cowdung in the summer. When potted they may be placed in their winter quarters at once, which is any convenient border where they can be covered with 8 inches depth of ashes. They are left there till March or April, when the bulbs will commence growing, and may be taken to a greenhouse or shed safe from frost. When taken to the former they could be placed in a row on the floor, the side which is least exposed to the sun, as, in case any of them have commenced growing in the ashes, the sun's powerful rays would blacken their bleached stems. They then could be taken for forcing as required, of course taking the most forward first, and leaving the others for later batches.—A. R. P.

ROYAL HORTICULTURAL SOCIETY.

AUGUST 8TH.

SEVERAL features of especial interest distinguished this meeting, but the most important were the fruit trees from Messrs. J. Veitch, the Gladioli from Messrs. Kelway, and the Tomatoes and Petunias from Messrs. J. Carter. The two last-named groups were arranged on tables in the vestibule, the Petunias being particularly attractive. Though not crowded the Council-room was well filled with exhibits.

FRUIT COMMITTEE.—H. J. Veitch, Esq., in the chair. Messrs. J. Veitch & Sons, Chelsea, sent a collection of seventeen varieties of Apples, including Lord Suffield, Ecklinville Seedling, and Hawthornden, very fine. They also sent four plants of Negro Largo Fig in pots, together with some well-ripened fruits of the same variety, for which a certificate was awarded. When fully ripe the fruits are of even turbinate form, 3 or 4 inches long, and dark brown or black. A silver Knightian medal was also awarded to Messrs. Veitch for a collection of fruit trees in pots; Pears, Peaches, Nectarines, and Apples being represented by specimens bearing very good crops of fine fruits. A cultural commendation was awarded to Mr. R. Gilbert, Burghley, for a collection of twelve varieties of very fine Potatoes, of good size, even, and neat. Mr. H. Eckford, gardener to Dr. Sankoy, Boreatton Park, Shrewsbury, sent a collection of eight varieties of Peas, which were characterised by the Committee as very promising. Mr. J. Broadfoot, gardener to Col. Miller, Shotover Gardens, Whatley, sent some fine Late Admirable Peaches. Messrs. J. Cheal & Sons, Crawley, Sussex, sent fruits of Early Lowfield Apple, which was, however, considered inferior to other varieties in cultivation. A bronze medal was awarded to Messrs. James Carter & Co., High Holborn, for a large collection of Tomatoes in pots, including about sixty specimens and nearly as many varieties. Some of the plants were bearing large and handsome fruits.

FLORAL COMMITTEE.—Rev. H. Harpur-Crewe in the chair. Messrs. Kelway & Sons, Langport, Somerset, exhibited a handsome collection of Gladioli, comprising sixty spikes of excellent varieties, several being new, and were honoured with certificates. The flowers were of great size, the spikes being long, massive, and compact. Some of the best varieties, exclusive of those that were certificated, were the following:—Belgica, pale mauve streaked with crimson; Argus, rich

scarlet with white streaks; Sir G. Nares, rose streaked with crimson; Lord Allington, very bright salmon scarlet; Mr. Derry, pale rosy purple; Shakespeare, white, with a crimson stripe in lower petal; Duchess of Westminster, blush, very delicate; Agricola, white, suffused with rose and streaked with crimson. A collection of single Pyrethrum blooms was also staged by the same firm, most of them being large and bright. A medal was awarded for this collection. Mr. Francis Smith, West Dulwich, contributed a collection of double Balsams in pots representing extremely varied colours, the flowers large, full, and of good form. A vote of thanks was awarded.

Messrs. H. Cannell & Sons, Swanley, contributed stands of handsome Show, Fancy, and single Dahlia blooms, the two first-named being distinguished by their size, substance, and good form, while the latter were noteworthy for the brilliancy of the scarlet, crimson, and maroon tints. Some fine blooms of Salpiglossis were also staged, several of a crimson tint streaked with yellow being very distinct and attractive. Mr. T. Ware, Tottenham, contributed a large collection of single Dahlias, for which a vote of thanks was awarded. A number of the best varieties were represented, together with several handsome unnamed seedlings. A collection of varieties of Phlox decussata was also staged, and some fine blooms of the white Clove Carnation Gloire de Nancy. Mr. H. G. Smythe, 17a, Coal Yard, Drury Lane, sent blooms of the new Carnation Mary Morris, a charming rose-coloured self of great merit. A desire was expressed that a plant be shown. A collection of blooms of Carnation Chiswick Red was also sent from the Society's Gardens at Chiswick. It is particularly remarkable for deep scarlet red of the blooms, which are, however, rather small. The General Horticultural Company, Melbourne Nursery, Anerley, sent plants of the glossy red-leaved Caladium Frederick Bause and Nepenthes superba and Hookera, the former bearing about two dozen pitchers, and the latter having large richly blotched pitchers.

A vote of thanks was accorded to Messrs. J. Veitch & Sons, Chelsea, for a most interesting collection of flowers of ornamental shrubs and trees from their Coombe Wood Nurseries, Ceanothuses, Hypericums, Veronicas, &c., being largely represented. Many very choice shrubs were also included, one very noticeable being Eucryphia pinnatifida with rich green leaves and white flowers. Mr. H. Eckford, gardener to Dr. Sankey, Boreatton Park, Shrewsbury, sent a collection of Sweet Peas, amongst which were several fine varieties, especially one named Bronze Prince, of a rich purple hue, the standard being of a reddish bronze tint. Messrs. J. Laing & Co., Forest Hill, sent a plant of a particularly handsome Tuberous Begonia named Dr. Masters, the flowers being bright scarlet, very large, the petals broad and rounded. Mr. W. Howard, Southgate, was awarded a vote of thanks for a fine collection of Carnation blooms.

A vote of thanks was accorded to Messrs. J. Carter & Co., High Holborn, for an extensive and handsome group of single and double Petunias, which formed a highly attractive display in the vestibule. The plants were very dwarf and well flowered, the blooms large, richly and diversely coloured, and very fragrant. Of the single varieties the most noteworthy were Queen of Roses, White Pearl, Purple Prince, Stars and Stripes, and King Crimson. The best doubles being Double Rosette, Bridesmaid, A. F. Barron, Prince George, Iris, Elaine, Cetewayo, Violet Beale, and Mrs. Hathorn. A pretty and interesting group of Gesneraceous plants was sent from Chiswick, some well-grown Achimenes, Tydas, Plectopomas, Rosonowias, Eucodonias, and Scheerias being represented.

First-class certificates were awarded for the following.

Gladiolus Bono (Kelway).—Flowers large in a close spike, rich, dark scarlet, the lower petals being tinged with rosy purple.

Gladiolus James McIntosh (Kelway).—Flowers very large, the petals broad, salmon scarlet streaked with a darker shade; lower petals crimson at the base; spike massive.

Gladiolus Ala (Kelway).—A charming variety, rich rose, the base and centre of the petals white.

Gladiolus A. F. Barron (Kelway).—Very bright scarlet, long well-formed spike, neat flowers, the petals being streaked in the centre with white.

Godetia Satin Rose (Carter).—An extremely handsome variety with large, rich, rosy flowers, possessing a satiny gloss that is very pleasing. The plant is of dwarf habit and exceedingly floriferous, being one of the most showy we have seen.

Phalænopsis violacea Schröderi (Ballantine).—A beautiful and distinct variety, with large flowers of a uniform bright purple colour, the petals being broad and rounded. It was shown by Mr. Ballantine, gardener to Baron Schröder, The Dell, Egham.

Polypodium vulgare cornubiense Fowleri (Stansfield).—A graceful dwarf variety with finely divided fronds 5 or 6 inches long, and somewhat suggestive in general texture and appearance of some of the slender Trichomanes.

Scolopendrium vulgare crispum multifidum (Stansfield).—A bold distinct Fern with rich green fronds, the margin very strongly undulated, the apex being divided and crested.

Lastrea montana coronans (Stansfield).—A slender graceful Fern with pinnate fronds 1 foot to 18 inches long, the pinnæ being neatly crisped at the apex.

Sweet Pea Bronze Prince (Eckford).—A very distinct variety with large flowers, the keel and wings rich purple, the standard broad, and of a peculiar bronzy red hue.

Petunia Mrs. Dunnett (Carter).—Blooms very large and full, white, rich crimson in the centre. Very fragrant and handsome.

WHY, WHEN, AND HOW WE MANURE OUR VINES.

THERE are two statements in the article by "SINGLE-HANDED" on the above subject, given in your last number at page 95, which are to my mind somewhat misleading if not qualified. I should gather from his words (for so he states) that, "of course, urine [whether of human beings or animals, whether of horses or cows or swine] contains no phosphoric acid." Again, he says, "I used bones very sparingly for two reasons, one being that we have a tank always filled with sewage water, and *that everybody knows* (the italics are mine) *is particularly rich in phosphoric acid.*" I find, however, that although the urine of horses and cattle is practically deficient in phosphoric acid, yet the urine of sheep contains 7 grains of phosphoric acid to the gallon; that of swine contains 49 grains; and the urine of man no less than 119 grains per gallon (these quantities are deduced from Wolf's tables); whereas sewage water contains only from 1 to 1.75 grain per gallon, and "SINGLE-HANDED" mentions that the sewage water he used was "very weak." "SINGLE-HANDED" informs us that in times of drought he had no other water than sewage water, and that he "never hesitated to use it freely, with first-rate results." Few will doubt this, but many, and I among the number, should be inclined to attribute these first-rate results rather to the water than to the phosphoric acid it contains, more especially as on reading further we learn that in the opinion of "SINGLE-HANDED" "among plant foods water occupies the chief place, just as water is the chief item in every bill of fare for animals." . . . "No matter what other food is provided, unless water is used very freely first-rate results need not be expected;" and, again, "Those who have been most successful have all used water freely." I should like to know whether "SINGLE-HANDED" does not really think as I do in this matter, although his words might seem to imply differently.—INQUIRER.

ARRANGEMENT OF FLOWERING PLANTS.

HOWEVER well plants may be grown for this purpose, we often find them crowded together so as to have as much bloom as possible within a moderate space. This is a great failing with many young men, who evidently think that the more plants they can place on a stage the greater is the display, and it is often difficult to induce them to follow a different course. On the other hand, some quickly acquire the art of arranging plants effectively. Where small decorative plants are grown they are often placed so as to form an even bank which has the appearance of being clipped into shape with the shears. This ideal arrangement is carried to excess in many establishments; we cannot blame young men for ideas which they have gained from others whom they have been accustomed to regard as authorities.

In some gardens there is but little opportunity of displaying well-grown plants to advantage. The stages are often far from suitable, and the houses too small. To see flowering plants to the greatest advantage it is absolutely necessary that they be either arranged on the floor or on low stages so that the whole can be looked down upon. Where the stages are ill constructed, even if the greatest care and taste are employed, well-grown plants cannot be shown in half their real beauty. Stages should not exceed 7 to 8 inches in height above the path, and should be from 2 feet 6 inches to 3 feet wide, then elegant arrangements can be carried out with ease. It is essential that the glass be within a short distance of the stage, as with abundance of light amongst the plants the flowers last longer. Some may say, If any arrangement sloping towards the centre of the house were adopted, the pots in the back row and those employed for elevating any plants that require it could be seen from the outside and would prove objectionable. By frosting the glass to 1 foot or 14 inches above the brickwork this disadvantage will be overcome, yet abundance of light would be admitted.

Light and elegant designs can easily be carried out where fine-foliage and flowering plants are associated. To my mind Palms, Dracenas, and similar plants add a beauty and distinctive character to the whole which can scarcely be achieved when they are excluded, though flowering plants may be employed if some of very distinct and elegant habit are included. To attain real success crowding must be carefully avoided. At the same time there should be no approach to scantiness. Each plant should be placed so that its particular attractions are well displayed, and some should be elevated so as to vary the general outline.

Epacris for light arrangements during winter and spring are

invaluable; their long slender stems bearing variously coloured flowers rise well above the more sturdy growers. By growing a number of plants a long succession can be maintained. Celosias with their various shades of rich crimson and yellow combined with their lasting properties command for them a foremost place during the winter when grown in 5 and 6-inch pots. Euphorbia jacquiniæflora should be grown in numbers in small pots, their slender stems and brilliant scarlet flowers gracefully arching above other plants have a most elegant effect. Amaryllises are very handsome; A. Johnsonii and its varieties are moderately cheap, and strong bulbs never fail to produce two and often three spikes of flowers. With this variety the flowers are produced before the foliage is developed, and are on this account even more serviceable. They can be grown in 5 and 6-inch pots providing they are liberally supplied with liquid manure while growing.

Begonia manicata and B. heracleifolia are amongst the most useful plants we possess. The flowering season can be greatly prolonged by retarding some and bringing forward others in heat until their flowers are about to open, when they will stand conservatory treatment providing the temperature ranges from 45° to 50°, and the flowers will last longer than would be the case if retained in heat. These are not grown in large numbers now, but they are worth any care, and their flowers are also very useful in a cut state for vases. Young plants are best annually produced, and I consider a good batch of the utmost importance either in the stove or conservatory. Lilium longifolium is also useful, and if grown in pots for a season or two can be had in flower very early in the season. This Lilium I consider the best of all for decoration in small pots, and should be grown in every garden.

Prunus sinensis flore-pleno is scarcely excelled for the purpose mentioned. Plants in small pots with from two to six shoots are preferable to those of larger size. Their slender shoots can be had in a season nearly 2 feet 6 inches in length, and if well ripened will be laden with snow-white double flowers at this season of the year.

Many Orchids are charming for this purpose, but I will only mention one, Odontoglossum Alexandræ. Its delicate flowers are produced on a graceful arching spike, and when the plants are judiciously associated with other flowering plants they add considerably to the effect.

It will clearly be seen from the above that formal arrangements are by no means advocated. When plants are staged for effect it is important that they be disposed so as to present a varied as well as pleasing and striking appearance. This is readily accomplished by the exercise of taste and judgment, and a knowledge of what plants are suitable for the purpose.—W. BARDNEY.

GENOTHERAS.

ON my return from visiting several gardens in Surrey famous for their collections of hardy plants, I see no reason to change my opinion about the best hardy Genotheras expressed on page 101. I saw nothing to induce me to add to or detract from the list there given, but I find a want of agreement about the names. With respect to one which I received and described as *G. riparia*, I believe the name is incorrect; it is more commonly named *G. cespitosa* or *G. linearis*, the latter being the name given to it in the garden at Kew. The true *G. riparia* is not unlike *G. fruticosa* or *G. Fraseri*, but inferior to them, and as it flowers at the same time is not often grown. With respect to the two last-named I find a want of agreement, and by gardeners they may be taken as one; but I find that some plants divide the stalk and prolong the flowering part of it, the other being generally simple-stalked and producing more of an umbel of flowers. After consulting "Loudon's Encyclopædia," I conclude that the latter is *G. Fraseri*, and the former *G. fruticosa*. He gives 3 feet as the height of *fruticosa*, and 1½ foot of *Fraseri*, but both exceed these heights in my soil according to situation; the branching species is, however, the taller. Some variation exists in the naming of the species I described as *G. marginata*, a synonym being *G. eximea*: but the former name, though sometimes applied to a species with smaller flowers, is adopted at Kew for the kind with the large white flowers. A species sent to me as *G. prostrata* and *G. acaulis* with incised leaves and medium-sized pale yellow flowers is here a rank weed.—C. WOLLEY DOD.

* EXTENDED BLOOMING OF PELARGONIUMS.—I am now referring to the Show, Fancy, and Regal varieties. I have often heard different growers complain of the short time those keep in flower, especially the Show and Fancy types. Some blame the nurseryman, and, I have always thought, most unfairly. Mine are now most beautifully in bloom, but I have always maintained this is dependent on the system

of treatment. Cool treatment and partial shade from the strong rays of the sun are the secrets of extended bloom. To this I might add small pots but rich compost and occasional supplies of liquid manure. W. J. M., Clonmel.

SENECIO PULCHER.

THE Groundsels or Senecios are a very extensive family, numbering nearly one thousand species, very variable in form and size; so remarkable are they in this respect that there is a gradual passage from small fleshy annuals to tall arborescent perennials. They occur in almost every latitude, but are particularly abundant in temperate regions; very strong in Southern Africa, not less than two hundred species finding a home there, and they are very plentiful in temperate South America. In this country they are represented by several species, of which the common Groundsel (*S. vulgaris*) and the Rag-weed (*S. Jacobæa*) are perhaps the most common; and if we were to judge the merits of the family for decorative uses by the former standard we should cease to entertain anything like friendly feelings towards them. Happily, however, many of them are extremely showy, both hardy and tender kinds; many of the alpine species are very pretty rock plants, and by no means common. Of all the introduced hardy kinds perhaps the subject of these remarks is the showiest. It is a vigorous-growing perennial with large fleshy or almost leathery leaves of a deep green colour and shining; the radical or root leaves are variously dentated and lobed, while those on the stem are ragged and irregularly cut. The flower stems are from 2 to 3 feet high, very stout, freely branching at the top, and supporting numerous flowers with the rays of a brilliant purplish-crimson colour, and the disk or centre golden yellow, measuring 3 inches or more in diameter, and lasting a considerable time in beauty. It flowers during the late autumn months, when it is of special interest and very welcome; and when well cultivated it is a most attractive plant—indeed so effective is it that there is no plant in flower with the same coloration comparable to it. *S. speciosus*, more recently introduced, is also a brilliant-flowered species, but I am much afraid that it will not prove hardy with us, otherwise it would be an invaluable addition to our borders.

Cultivation.—It is one of those plants which may readily be cultivated in ordinary borders and with similar treatment, but especially does it thrive in rich loamy soil in a damp situation, as it enjoys plenty of moisture during the summer months. Some plants last season planted in almost a swampy place developed remarkably and flowered very freely; in fact a connoisseur of such plants stated he had never seen the species in finer condition. Some of the flowers measured 4½ inches across, and the rays were proportionately broad, which I consider was entirely due to the circumstances under which the plants were grown. As regards the pot culture of this plant, there is no difficulty in securing good flowering plants by that treatment in, say, 5 or 6-inch pots, using as soil good yellow loam, leaf soil, and well-decayed cow manure with some wood ashes and sand, or in lieu of the ashes fine nodules of charcoal: the latter is of decided advantage in growing the plant. Perfect drainage is also essential, and an abundance of moisture during the growing season; and it would be advisable to plunge the pots in some material such as spent hops or ashes, which would greatly assist to keep the roots cool and moist. The advantages of pot culture would be great, especially in the case of very late-flowering plants, which are liable to be ruined by the earlier frosts, as they could then be easily placed under shelter, and would be useful for the decoration of the conservatory, being well adapted for arranging with groups of plants on the floor. As the stems are tall the flowers would in that position be seen to greater advantage, and would certainly be most effective. If the flowers are very late and it is desirable to secure them from the frost it will be necessary to protect them during the night with a mat or some covering, as I have found it difficult to move the plants when established in the soil owing to the absence of fibrous roots to keep the soil together. The plant is liable to the attack of a rusty-looking fungus, which frequently affects every part of the foliage; this I think is mainly due in many instances to stagnant soil, and charcoal added to the soil appears of great benefit, or flowers of sulphur dusted on the foliage is prejudicial to its development.

Propagation.—When we possess such a valuable plant it is of great interest to know the best way to increase it and contribute in every possible way to its rapid distribution. It is not readily increased by division, but there are still two other methods by which the stock can be multiplied—viz., by seed and root-cuttings. The first plan is not to be encouraged, as, to begin with, the seed is very expensive and very slow in germination, which to the amateur frequently cause great disappointment. The other method—viz., by root-cuttings, is most expeditious though not

generally known, therefore I shall describe it in detail. When the plant is well established large fleshy roots are freely produced about the thickness of straw; these may be taken from the plant any time from early spring till autumn, and, of course, it is only advisable to remove as many roots as necessary to secure sufficient stock, or the plant will suffer severely. The roots should be cut into pieces an inch or more long with a sharp knife, and dibbled thickly in pots of soil and covered with sharp silver sand, so that the upper end of the cutting is just level with the surface of the soil, which should be made up of loam, leaf soil, and sand, with the pots thoroughly drained; and when filled with the root-cuttings the pots should be placed in a cold frame and kept close and

shaded during bright sunshine, if the pots are covered with a bell-glass so much the better. All things being equal, the upper ends of the cuttings will be well callused in a few days, and a bud or buds will be formed, while the lower end emits roots; and in due course young plants will be fully formed, which should be carefully potted in the same kind of soil with some pieces of charcoal finely broken, and placed in a cold frame kept close until they are quite established, when they may be exposed or planted out in the open ground. If kept in pots it is advisable to plunge the pots in some suitable material. By this means there is no difficulty in propagating the plant by the thousand if required. To begin with, it is preferable to purchase plants rather than seeds,

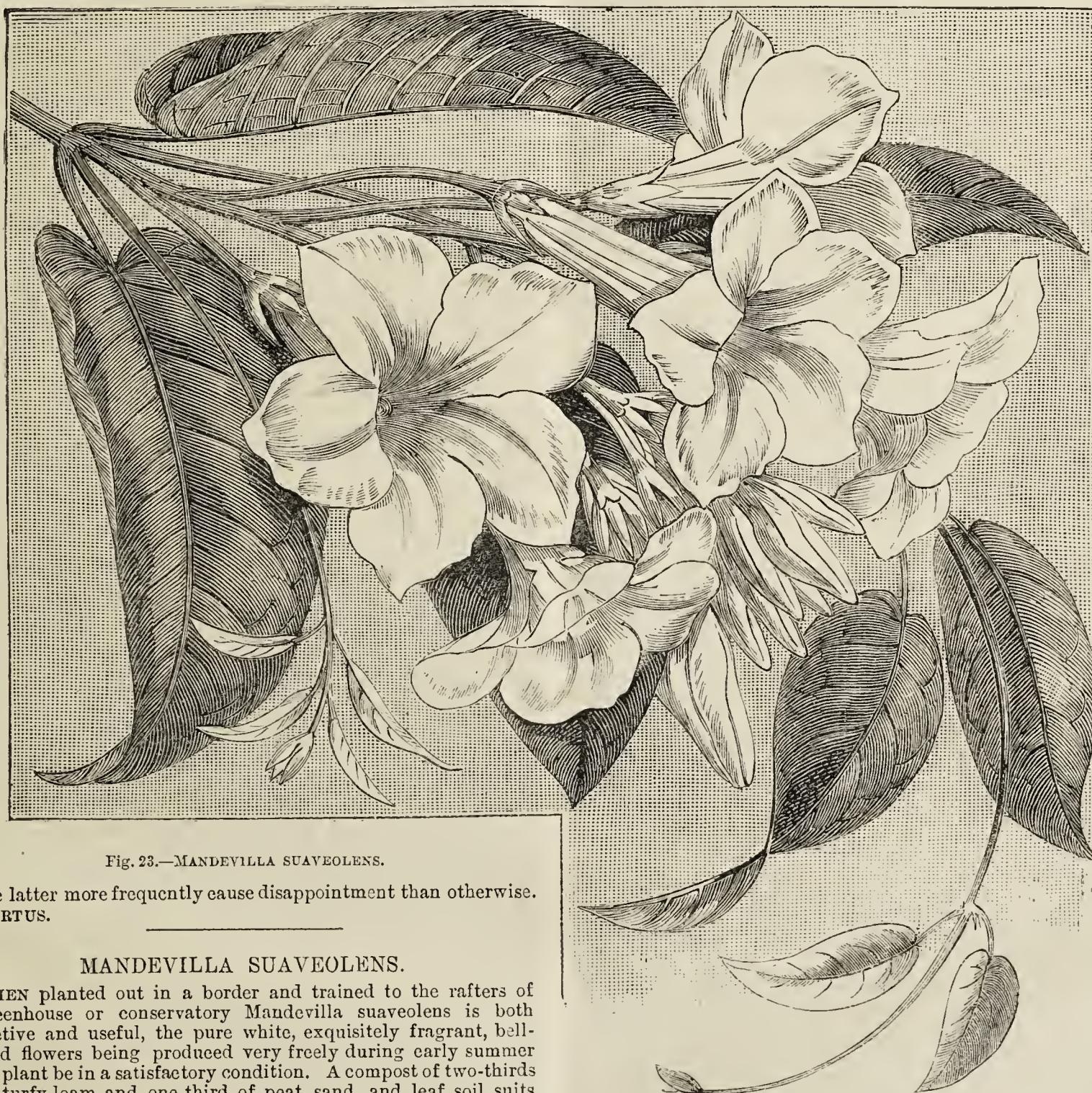


Fig. 23.—MANDEVILLA SUAVEOLENS.

as the latter more frequently cause disappointment than otherwise.—HORTUS.

MANDEVILLA SUAVEOLENS.

WHEN planted out in a border and trained to the rafters of a greenhouse or conservatory *Mandevilla suaveolens* is both attractive and useful, the pure white, exquisitely fragrant, bell-shaped flowers being produced very freely during early summer if the plant be in a satisfactory condition. A compost of two-thirds good turfy loam and one-third of peat, sand, and leaf soil suits it very well, but occasional supplies of weak liquid manure will prove beneficial when growth is advancing. The shoots must be trained in a position where they will be well exposed to light, and it is advisable to allow some of the young growths to hang free, as the plant then has a more graceful appearance. Care is needed to keep the plant clean, as insects, such as scale or mealy bug, are frequently rather troublesome. During winter comparatively little water is needed, giving only sufficient to keep the soil moderately moist.

CHLORA PERFOLIATA GRANDIFLORA.

THIS was the name under which the late Mr. G. Joad, who was a good botanist, used to grow the brilliant biennial, mentioned by

your correspondent on page 32 as being so ornamental in the plant house in the Botanic Garden at Cambridge. Mr. Joad told me that he did not know its origin, but that he believed it to be a variety of the wild British plant *C. perfoliata*. The large-flowered southern natural varieties of some native species, with their many variations in form, are so deceptive that it is seldom safe to disbelieve in identity because of difference in appearance. We are told that the grandiflora forms of *Prunella* are nothing but continental forms of *P. vulgaris*; and our common wild Bluebell (*C. rotundifolia*) is sold under at least a dozen different names, some of them being giant alpine forms, but several of them found on English and Welsh mountains. But many of us would like to know the history of this *Chlora*, which is not yet common in seed

catalogues. It certainly is far less hardy than our native plant, for I had two pans of healthy seedlings killed by frost in a frame in the winter of 1880.

I am not one of those who think that Nature is the best guide in gardening operations, where plants cannot always have their natural conditions supplied to them; but with regard to the time of sowing plants which are biennial in nature, I think the right time is always as soon as the seed is ripe. If seedlings are allowed to be crowded in pans, and are ill supplied with food and water, they are spoilt; but this *Chlora*, like all other biennials, should be transplanted early, and have plenty of room to grow. I have grown it for three years in large quantity both in pots under glass and planted out on sunny rockeries and in sunny beds, and when the sun is out it never fails to attract admiration; but, like most of the *Gentian* tribe, it closes when the sun is off. It is too slender to stand against high wind, and it looks best in a mass skilfully pegged down. I plant it out in May, and it flowers through July and August, ripening seed during the latter month. Can no one tell us its real history?—C. W. D.

LIVERPOOL SHOW.

AUGUST 5TH.

SEFTON PARK in which the Exhibition was held is without doubt the most beautiful public park in the provinces, and by the admirable manner in which it is kept by Mr. Herbert is certainly one of the most enjoyable. The Exhibition under notice was not only the best that has ever been held in the Park, but beyond question the finest early autumn show that has been seen in England this year. It is not too much to say that the specimen stove and greenhouse plants were magnificent, and not a few of them unique; and it is the more creditable to the cultivators of the district that the chief prizes in all the open classes in this section were won by local competitors. Mr. Mease was the premier exhibitor, and the splendid quality of his products entitle him to a high place of honour amongst British gardeners. Fruit was of great excellence, Black Grapes especially being superb, and Muscats fine; Peaches large, and many of them remarkably well coloured. Nectarines were similarly fine; a dish of Pine Apple staged by the exhibitor named being the richest in colour we have ever seen, and of the first size. Pines were admirably represented, but Melons were rather small. Vegetables, excepting the Peas and Potatoes, were perhaps the weakest part of the Show; still the winning collections included superior dishes, notably the cup collection of the redoubtable Mr. Mease. Cut flowers were of great excellence, there being some good stands of Roses notwithstanding the late inclement weather, while the collections of exotic and hardy flowers were of the first order of merit. Miscellaneous groups of plants were attractive, and some of them tastefully arranged, but although decided progress has been made in this section there is still room for improvement. Bouquets on the whole were not of high-class quality, and we should not give a faithful record of the Show if we did not say the epergnes were decidedly bad. Collections of ornamental trees and Conifers were of great magnitude and merit; but the award of the gold medal by no means met with general approval, and Messrs. Ker & Son were regarded by the public as the premier exhibitors. Having given a general idea of the Show we will refer to the principal classes, making no pretence to notice all the exhibits in the three large marquees—one of them a hundred yards in length.

PLANTS.

Stove and Greenhouse Plants.—In the open class for twelve specimens Mr. Mease, gardener to F. Neumann, Esq., Wyncote, Allerton, was first with such specimens as are seldom seen. *Croton variegatus* was 9 feet in diameter, excellent in colour, and faultless in form. *C. Queen Victoria* was grand; 7 to 8 feet in diameter, and, so far as we know, unequalled. The other plants were *Ericas* *retorta* major and *Parmenteriana rosea*, neat; *Clerodendron Balfourianum* and *Allamanda Hendersonii*, fresh; *Latania borbonica*, *Gleichenia Mendelli*, *Croton angustifolius*, and *Ixora coccinea*. Mr. Pears, gardener to R. R. Raynor, Esq., Hillside, Allerton, was a good second, his notable plants being a fresh and fine *Clerodendron*, *Croton Queen Victoria* in superb health and colour, *C. Disraeli*; fine and most creditable examples of *Calamus ciliaris*, *Latania borbonica*, *Allamanda Hendersonii*, and a fine *Dicksonia antarctica*. In the open class for six plants Mr. Mease was again first with, amongst others, *Allamanda grandiflora*, a really grand and fine *Stephanotis*, with *Vinca alba* and an *Ixora*, both good; Messrs. Caldwell & Sons, Knutsford, and Mr. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, securing the remaining prizes with excellent plants. In the local class for ten plants Mr. Leadbeater, gardener to T. S. Timmis, Esq., Grasendale, secured the foremost position, his *Stephanotis* being of rare merit; *Ixora Dixiana* with a hundred bright trusses, *Allamanda Hendersonii*, and *Croton Queen Victoria* remarkably fine. Mr. Cox, gardener to W. H. Watts, Esq., Wavertree, followed, his best plants being *Alocasia macrorhiza* variegata and *Kalosanthes Dr. G. Regel* attracting special attention. For four plants the prizes went to Messrs. Pears and Cromwell. The best specimen stove plant was *Anthurium Andreanum* with seven spathes 5 by 4 inches in diameter, and foliage 14 inches long by 9 inches wide.

He had also the best greenhouse plant—*Kalosanthes miniata*, a semi-globe nearly 4 feet across, like a huge bouquet of rosy flowers. The best *Ericas* were staged by Mr. Cromwell, the plants exceeding 3 feet in diameter and well flowered.

Fine-foliage Plants.—In the open class for eight plants there was excellent competition, Mr. Faulkner securing the chief position with admirable examples of *Areca Baueri*, *Alocasia Lowi*, *Pritchardia pacifica* fine, *Kentia australis* splendid, *Croton Weismanni* 7 by 6 feet, *C. Queen Victoria* excellent, *Latania borbonica*, and *Cocos revoluta*. Mr. Cromwell, gardener to T. Moss, Esq., Aigburth, was a good second, his prominent plants being *Anthurium Warroqueanum* with five leaves from 3 to 4 feet long, *A. cristalinum* remarkably fine, and *Kentia Fosteriana*. Messrs. Caldwell & Sons were third. In the class for six plants Mr. Mease was first with plants of extraordinary merit. The beautiful *Croton Prince of Wales*, 4 feet in diameter at the base and 5 feet high, is with little doubt the finest plant in the country, as it was the gem of the Show; *C. Weismanni*, a grand bush 8 feet in diameter, and *C. interruptus*, 9 feet across, were the striking plants in this group. Mr. Leadbeater was second, staging *Davallia Mooreana* 9 feet across, and *Alocasia metallica* 6 to 7 feet. Mr. Mercer, gardener to Mrs. Crossfield, Aigburth, followed, *Phyllanthus nivosus* being seldom seen in such fine condition.

Ferns.—Mr. Faulkner distanced all competitors in the class for eight plants. *Adiantum lunulatum* 6 inches high and 5 feet across being quite unique, and was excellently matched with a similar mass of *Davallia humata* Tyermanni, while *Nephrolepis davallioides* furcans we have never seen so large and fine, the plant being 6 feet in diameter, with grand arching fronds. Mr. Pears was second in this class, *Davallia polyantha* being admirably grown; and Mr. Gore, gardener to T. Holder, Esq., Prince's Park, third. Mr. Whitfield, gardener to J. T. Cross, Esq., Aigburth, had the best specimen Fern, *Goniophlebium subauriculatum*, 4 feet through, with drooping fronds 5 feet long. For six plants Mr. Cromwell was first, *Lomaria zamifolia*, *Pteris scaberula*, and *Gymnogramma peruviana argyrophylla* being in superior condition. Mr. Stevenson, gardener to Mrs. Horsfall, was second, his group including a most meritorious example of *Adiantum excisum* 4 to 5 feet in diameter, all the rest being good. Mr. Foster, gardener to J. Branker, Esq., Wavertree, had third honours, his notable plant being *Todea superba*, really superb. In the class for ten hardy Ferns Mr. Faulkner was again decidedly in advance with plants of great excellence, followed by Mr. Gore.

Orchids.—Only two classes were provided for these, but the competition and quality of the plants exhibited were superior to any staged at the Society's previous exhibitions. In the class for four plants Mr. W. Sherwin, gardener to Morton Spark, Esq., Huyton, was well ahead with a grand variety of *Saccolabium Blumei majus* with two large spikes, *Cattleya Leopoldii* with eighteen flowers, *Odontoglossum Alexandræ* with one large spike, good variety, with flowers nearly 3 inches across; and a large pan of well-grown *Disa grandiflora* with fully forty flowers. Mr. Edwards, gardener to Dr. Walker, Liverpool, was a good second with *Cattleya crispa*, *Odontoglossum Pescatorei*, *Oncidium Lanceanum* (three spikes), and a good *Saccolabium Blumei majus* with three spikes; Mr. Bostock, gardener to E. Harvey, Esq., being third. For one plant Mr. E. Smith, gardener to R. D. Holt, Esq., Sefton Park, was first with *Aerides suavisimum* with six grand spikes; Mr. Lander, gardener to Mrs. H. Banner, Birkenhead, second with *Oncidium Lanceanum* with six spikes; and Mr. Sherwin third with *Saccolabium Blumei majus* with four spikes. There were eight entries in this class.

Conifers.—Three very fine groups of these were arranged—two, one on each side of the entrance to the grounds, and the other some distance in the grounds near the fruit and vegetable tent. The Society's gold medal was given for the best collection of hardy trees and shrubs, and the Judges pronounced in favour of Messrs. Caldwell & Sons' collection. That belonging to Messrs. R. P. Ker and Son included a good assortment of choice ornamental trees, Hollies, and Conifers. Messrs. J. Dickson & Son also staged a good choice group.

Fuchsias were on the whole far superior to any that have been seen at previous shows of the Society, the plants in the winning classes ranging from 6 to 7 feet high and 3 feet in diameter at the base. The most successful competitors were from Aigburth—namely, Messrs. Butler, gardener to T. Drysdale, Esq.; Leadbeater; Evans, gardener to Mrs. Lockett; Hurst, gardener to W. B. Bowring, Esq.; and Wright, gardener to E. Lawrence, Esq.

Begonias formed a brilliant feature of the Show, and it is questionable if such a large number of huge specimens have ever been seen together before. The prizes offered by Messrs. John Laing & Co. were won by Messrs. Hurst and Evans with comparatively new varieties, and consequently the plants were not large—about 2 feet in diameter, but those older forms in competition for the Society's prizes were wonderful by their size and excellence. Mr. Mease's single specimen of *Vesuvius* was 5 by 5 feet and crowded with brilliant flowers, and the second and third-prize plants of Messrs. Wright (Emperor) and Leadbeater (*Vesuvius*) were little inferior. The collections of six plants from Messrs. Stevenson and Evans were similarly remarkable by their size and quality, as were those of Messrs. Hurst and Wright in the classes for three plants. The competition was spirited, there being dozens of plants 3 to 4 feet in diameter densely covered with dazzling flowers.

Petunias were as fine as the Begonias, and that is saying a great deal; indeed we never saw any to equal those with which Mr. Littlemore, gardener to A. Wilkinson, Esq., Aigburth, won the first prize in the class for six plants. The specimens were dense bushes about 3 feet high, and exceeding that in diameter, the blooms being as regular as if arranged in bouquets, and large and of bright colour withal. Mr. Stevenson followed with smaller but very fresh and fine plants; in fact the majority of the plants staged were very far above the average in which Petunias are seen in pots.

Zonal Pelargoniums, although not equal to the grand specimens exhibited at the York and Leeds Shows, yet showed great improvement, and those in the winning collections were most creditable to the cultivators. The pyramids of Messrs. Whitfield and Evans were 3 to 4 feet high, having a basal diameter of 2 feet, fine in foliage and trusses; and the dwarf bushes of Messrs. Stevenson, Littlemore and Finnigan, were as good as plants of the size could be desired—3 feet in diameter.

Caladiums were grandly shown by Messrs. Mease, Mercer, and Warrington, several of the plants being 5 feet in diameter, admirably furnished with large well-coloured leaves of a foot and more across. The best Coleuses were staged by the last-named exhibitor, 4 feet bushes of the best varieties in excellent colour. The best Lycopods, very fresh and good, were staged by Messrs. Mercer, Wright, and Hurst.

Gloxinias were an attractive feature, and added materially to the beauty of the Show, the plants being well bloomed and the flowers bright and of good quality. Mr. Gowan took the lead with grand plants 18 inches in diameter, followed closely by Mr. Mease and Mr. W. Evans. Cockscombs were very effective, being dwarf and well-shaped. Mr. T. Gowan was placed first, Mr. Leadbeater second, and Mr. Mease third.

Table plants were admirably shown, of the right size and in good colour and condition, the prizes going to Messrs. Jones & Sons, Shrewsbury; G. Park, gardener to R. A. Harrington, Esq.; and T. S. Timmis, Esq.

Groups.—These occupied the centre of two large tents, the one being devoted to the open class and the other to the class provided for local exhibitors. The groups were circular, and arranged for effect, space not to exceed 150 square feet. Mr. A. R. Cox took the lead in the local class with the lightest arrangement in the whole, the centre being occupied with a large plant of *Dracæna Baptisti*, while others of various sizes and variety were dotted here and there, such as *Crotons Weismanni*, *Johannis*, *Disraeli*, and *Cyperus alternifolius variegatus*, the groundwork of dwarf Ferns, Coleuses, Zonal Pelargoniums, Celosias, and Gloxinias. Mr. W. Mease followed closely with choice plants, but their appearance was rather too heavy. Mr. G. Leadbeater followed closely, and was awarded the remaining prize. The groups in the open class were also circular, but not to exceed a space of 250 square feet, the premier honour being given to the Liverpool Horticultural Company (John Cowan). The group contained many valuable plants of new *Crotons*, *Dracænas*, and others freely intermixed with Orchids, *Stephanotis*, Gloxinias, Begonias, and other flowering plants, the arrangement being rather too close and heavy. Messrs. R. P. Ker and Son, Aigburth Nursery, also staged a choice collection of plants similar in every respect, for which they were placed second. As examples of good taste the gardeners' arrangements certainly surpassed those of the nurserymen, but none were equal to the best groups at southern exhibitions.

Certificated Plants.—The following were exhibited by Mr. B. S. Williams for the first time in Liverpool, and were awarded certificates. *Asparagus plumosus nanus* and *A. virgatus*; *Nepenthes Lawrenciana*, *N. Williamsii*, and *N. Stewartii*; *Capsicum Little Gem*, a valuable decorative variety; *Aralia Chabrieri*; *Areca lutescens gracilis*; and *Amaryllis Mrs. Garfield*, a distinct and beautiful variety with blush flowers veined rose, and the distinct leaf midrib of one of its parents *A. reticulata*. To Messrs. Ker & Son for *Dracæna Lindenii*; *Croton Kingianus* with leaves 17 by 9 inches; *C. flammeus*, somewhat resembling *C. majesticus*, but richer in colour; *C. Duchess*, with leaves an inch wide and 18 inches long, deep yellow; and for a bedding Pelargonium named *Silver Gem*, dense in habit and does not flower. It is presumably of continental origin, and we think was sent to Mr. Cannell under its continental name. Messrs. Kelway & Sons had similar awards for the following new and very fine *Amaryllises*:—*Gheimus*, lilac, boldly flaked with rose, purple spot, very fine; *Lady Derby*, white, bright purple spot, chaste; *Amyntas*, white, flaked rose, very broad petals; *Appianus*, white with rose spot, a smooth and charming flower; *Lord Sefton*, salmon heavily flaked with crimson, distinct; *Aquinus*, lilac blazed with rose, effective.

CUT FLOWERS.

The classes devoted to these were admirably filled, especially those devoted to stove and greenhouse and herbaceous cut flowers. Messrs. Perkins & Sons, Coventry, were the successful exhibitors in the open class for forty-eight Roses, distinct, single trusses; Messrs. James Dickson & Sons, Newton Nurseries, Chester, were good second; and Mr. R. Mack, Catterick Bridge, Yorkshire, secured the remaining prize. There was only one exhibitor in the open class for twenty-four triplets, and Mr. Gittens, gardener to T. B. Hall, Esq., Rock Ferry, was awarded the first prize. In the local class for twenty-four single blooms the same exhibitor was again first with fresh examples. The same exhibitor was also successful for twelve single blooms very fresh and bright;

second Mr. W. Mease, and third Mr. R. Brownhill. There were seven entries. Messrs. R. Dickson & Sons and R. Mack were the only exhibitors for twelve blooms of any dark Rose, and obtained the prizes in the order as named, both showing well Alfred Colomb. In the corresponding class for twelve light Roses Mr. R. Mack took the lead with *Comtesse de Serenye*, Messrs. J. Dickson & Sons second with *Elie Morel*, there being only one point between them; and Messrs. Perkins and Son third with *Capitaine Christy*. T. B. Hall, Esq., was first for the best and most tastefully arranged box of Roses, not less than twelve varieties. The box contained a good number of Tea blooms, which were freely intermixed with *Adiantum cuneatum*. Mr. R. G. Waterman, gardener to A. Tate, Esq., Woolton, was placed second with a neat box.

For eighteen varieties of stove and greenhouse cut flowers Mr. Faulkner staged a wonderful collection, the bunches being large and neat, which gained for him the premier position by one or two points. Mr. Faulkner's box contained *Kalosanthes Madam Wynes*, *Solanum jasminoides*, *Ixora Williamsii* and *Prince of Orange*, *Lapageria rosea* and *alba*, *Gloriosa superba*, *Stephanotis floribunda*, *Statice profusa*, *Dipladenia boliviensis*, *Erica Aitonii*, *E. tricolor Wilsoni*, *E. t. profusa*, and *Miltonia spectabilis*. Mr. Mease's stand contained a grand spike of *Saccolabium Blumei majus*, and the remaining bunches were of great excellence. The last-named exhibitor was first for twenty-four varieties of herbaceous cut flowers (open). The collection, a remarkably fine one, contained *Phlox Oberon*, a grand dark variety; *Lilium auratum*, fine; *Gladiolus brechleyensis*, *Phlox Le Luon*, *Alstromeria aurea*, *Achillea Ptarmica flore-pleno*, *Pentstemon Ethel*, *Lilium longiflorum*, *Galega officinalis alba*, *Agrostemma coronaria*, *Oenothera Youngii*, and *Dahlia Juarezii*. Mr. J. Bostock, gardener to E. Harvey, Esq., Riversdale, Aigburth, was a very close second. Mr. Faulkner was third with a handsome collection. In the local class for twelve Mr. Mease was again first; Mr. W. Bustard, gardener to J. Lewis, Esq., second; and Mr. A. R. Cox third. Bouquets were not numerous nor of superior quality. The prizetakers for two in the open class were Messrs. Jones & Sons, Shrewsbury; G. Downs, Prince's Park, Liverpool; and Colebrook, Dingle Head. For one the second-named exhibitor was first, Messrs. Jones & Sons second, and the same exhibitor third as in the previous class. In the local class Messrs. J. A. Williamson, Colebrook, and J. Agnew, gardener to Mrs. Watts, were the prizetakers. Mr. J. Phythan, gardener to D. Walker, Esq., West Derby, was placed first for an epergne, and needs no further comment. Carnations were neat but small, Mr. R. Brownhill being first for twenty-four blooms, and Mr. W. H. Watts second.

FRUIT

Fruit was of superior quality, and the competition keen in nearly all the classes. The Grape classes were especially well filled, and some wonderful examples of Black Hamburgs and Muscat of Alexandria Grapes were staged. The Peaches, Nectarines, and Pines were also very fine—in fact, it is seldom that such specimens of high quality and in such quantity are seen at any provincial exhibition.

Collections.—In the class for eight dishes of fruit, distinct kinds, not more than two varieties of Grapes, Mr. Joseph Ward, gardener to T. H. Oakes, Esq., Shropshire, took the lead, followed closely by Mr. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, Liverpool, and Mr. Edwards, Nottingham. The first collection contained well-finished Muscat of Alexandria and Black Esperione Grapes, Eggleston Hybrid Melon, Queen Pine, Bellegarde Peaches, *Violette Hâtive* Nectarines, Brown Turkey Figs, and a good dish of Plums. Mr. Faulkner staged good examples of Madresfield Court and Muscat of Alexandria Grapes, large Princess of Wales Peaches, and well-coloured for that variety; Rivers' Orange Nectarine, Brown Ischia Figs, Eleanor Strawberries, and Scarlet Gem Melon; Mr. Edwards having good Chancellor Peaches, *Violette Hâtive* Nectarines, and very fair Grapes and a Pine. In the corresponding local class for six dishes Mr. W. Mease was well ahead with a grand collection, comprising fine Black Alicante and Muscat of Alexandria Grapes, both being large in bunch, berry, and remarkably well finished; Hero of Lockinge Melon, grandly netted; *Violette Hâtive* Peach, well-coloured; Moorpark Apricots, and the best dish of Pine Apple Nectarine in the Exhibition. Mr. Elsworthy, gardener to A. R. Gladstone, Esq., Court Hey, Liverpool, was a close second with good Grapes of Madresfield Court and Muscat of Alexandria, Dickson's Exquisite Melon, Pine Apple Nectarine, and remarkably fine examples of Bellegarde Peaches. The third prize went to Mr. Furgerson, gardener to Mrs. Paterson, Rock Ferry, who staged good Black Hamburg Grapes, Royal George Peaches, and Best of All Melon.

Pines.—In the class for two Pine Apples the competition was good, and the premier award was deservedly obtained by Mr. Edge, Cringle House, Cheadle, for really fine fruits, of large size, and well-swelled pips. Mr. J. H. Goodacre, gardener to Earl of Harrington, Elvaston Castle, Derbyshire, was a close second, and Mr. F. Faulkner followed closely. For one Pine the last-named exhibitor was first with a superior Queen, followed by Mr. S. Whitfield, gardener to J. T. Cross, Esq., Beechwood, Aigburth. Fifteen fruits were staged.

Grapes.—In the class for four bunches of Grapes, two white and two black (distinct varieties), there were eleven entries, and all remarkably good. Mr. C. Young, gardener to J. Evans, Esq., Hurst House, Prescott, was awarded the premier award with large bunches of Madresfield Court, good in shape and berry, but slightly under-

coloured; grand Black Hamburgh, with fine berries; good Muscat of Alexandria, and Foster's Seedling, weighing fully seven pounds. Mr. J. Ward was second with smaller bunches, but superbly finished examples of Buckland Sweetwater, Muscat of Alexandria, Black Hamburgh, good berry, but slightly rubbed, and good Madresfield Court. Third Mr. R. Brownhill, gardener to Mr. Hargraves, Rock Ferry, with superb Alicante and Muscat of Alexandria. There were ten entries in the class for two bunches of Black Hamburgh Grapes, which caused the Judges considerable trouble in deciding; but Mr. J. Stephenson, gardener to Major Pilkington, Windle Hall, was accorded the premier honour for superb bunches, not the largest, but remarkably even well-staged bunches, with berries of large size, good in bloom and colour. Mr. I. Barker, gardener to Alderman Raynes, Rock Ferry, was second with bunches equally good in all respects except the berries, which were a trifle smaller. Mr. Washington, gardener to I. John, Esq., Rock Ferry, took the remaining prize with large bunches, well coloured, but a little rubbed in travelling. Mr. T. Furgerson was also awarded an extra third prize for good bunches. There was the same number of exhibitors in the class for two bunches of Muscat of Alexandria, and Mr. Wm. Blomily, Oaklands, Aigburth, took the lead with grand examples, well finished, followed closely by Mr. Mease, the bunches having larger berries but not such a fine amber colour. Mr. R. Brownhill, was third. For two bunches of black Grapes Mr. Mease was first with large bunches of Alicante, grand berries, and superbly finished, Mr. Young staging Madresfield Court, which was all that could be desired in bunch and berry, but scarcely ripe; Mr. Furgerson being third with Black Hamburgh. Mr. Finnigan, gardener to W. Burnyeat, Esq., took the lead for two bunches of white Grapes with Buckland Sweetwater, remarkably fine; Mr. Wm. Blomily second with Muscat of Alexandria, and Mr. Mease third with the same variety. There being nine entries.

Peaches and Nectarines.—Peaches, as before said, were of superior quality, and Mr. Elsworthy took the lead in the open class with Bellegarde, which were the finest in the Show. Mr. J. Delworth, gardener to Mrs. Holland, New Brighton, second with the same variety, but not so well coloured. Mr. J. Pears took the remaining prize with large fruits of the pale-coloured Princess of Wales. In the corresponding class the same exhibitor was again first with the same variety, followed by Mr. F. Roberts, gardener to W. D. Holt, Esq., Sandfield Park, West Derby, with large well-coloured Violette Hâtive, and Mr. J. Pears again third with the same variety as in the preceding class. Mr. J. Wallis, gardener to Rev. W. Sneyd, was first in the open class for a dish of Nectarines with well-coloured Elruge; Mr. Elsworthy second with Pine Apple, and Mr. Furgerson third. In the local class Messrs. J. Hurst, gardener to W. B. Bowering, Esq., and J. Webster were the prizetakers.

Melons.—These were not numerous nor of superior quality. Mr. Wm. Mease took the lead for a green-fleshed kind, followed by Mr. J. Stephenson and Mr. G. Mease, gardener to W. Nichol, Esq., St. Michael Mount. For a scarlet-flesh the same exhibitor was again first with Hero of Lockinge. Mr. Foster, gardener to Mr. Barker, and J. Stephenson were second and third respectively. Messrs. W. Mease and Elsworthy were the only exhibitors for Strawberries, and took the prizes as named. Mr. Hanagan, gardener to R. C. Naylor, Esq., Hooton Hall, Cheshire, was first for Cherries with White Heart, Mr. Dallachie, gardener to Mrs. Zwelchurbart, Aigburth, and Mr. W. Evans, gardener to Mrs. Lockett, second and third. Mr. Hanagan took the lead for six dishes of hardy fruits, which was not shown in large quantities or of extra quality, his best dishes being White Heart Cherries, Early Orleans Plum, Moorpark Apricots, and Citron des Carmes Pears. Mr. W. Mease and Mr. J. Lambert, gardener to Col. Wingfield, Shrewsbury, took the remaining awards.

VEGETABLES.

On the whole we cannot speak favourably of the vegetables, neither do the exhibitors stage them to the best advantage, the Peas and Potatoes being an exception. The former were shown in large numbers and in good condition, while the latter were clean and numerous, but too large. The cup collection for twenty-four dishes, distinct varieties, not less than twelve kinds, given by Mr. D. Cuthbert, seedsman, Clayton Square, Liverpool, and won by that successful exhibitor Mr. Wm. Mease, were really the only vegetables worthy of special mention with the exception of those alluded to above. The best dishes in the collection being Orange Jelly and Snowball Turnips; Leicester Red Celery; Intermediate and Early Horn Carrots; Model and Telegraph Cucumbers; Potatoes Woodstock and Schoolmaster; Laxton's Supreme and Telephone Peas; Onions, Giant Rocca and White Italian; Scarlet Runner and Canadian Wonder Beans; excellent Mushrooms; good large red Tomatoes; Longpod Beans, and Globe Artichokes. Mr. J. Richardson, Boston, was first for the collection of twelve dishes (in the open class) with good Ne Plus Ultra Pea, large Tomatoes, and Favourite Potato. There was no name to the second collection, the Tomatoes and Schoolmaster Potatoes being good; Mr. A. R. Cox was third, having a good dish of Dedham Favourite Tomato and Telegraph Peas. The last-named exhibitor, gardener to W. H. Watts, Esq., was first in the corresponding class for twelve dishes; his best dishes were Model Cucumber, Hathaway's Excelsior Tomato, Canadian Wonder Beans, Defiance Red Celery, and Fingland Yellow Turnip. Mr. Faulkner and Mr. Elsworthy being the remaining prizetakers. Nine entries.

Peas were of first-rate quality and well filled considering the unfavourable season. For six dishes in the open class Mr. L. F. Turner, gardener to D. McIver, Esq., Bromborough, took the lead with Carter's Pride of the Market, Telegraph, Baron, Laxton's Supreme, Telephone, and Dr. McLean. Mr. J. H. Goodacre, Elvaston Castle, second with Stratagem, Criterion, Telephone, Williams' Emperor of Marrows, and Walkers' Perpetual. Third, Mr. J. Richardson, Boston, having Triumph good. Mr. A. R. Cox took the lead for four dishes, showing well Culverwell's Giant Marrow, The Baron, Telegraph, and Telephone. Messrs. Turner and W. Mease second and third with much the same kinds. There were eleven entries.

Potatoes were clean, and the classes devoted to them were well filled. Mr. Hanagan took the lead in the open class for six dishes (three round and three kidneys) with Woodstock Kidney, White Kemps, Schoolmaster, Myatt's Prolific, Grampian (good), and International. Mr. J. Richardson followed, having good Lye's Favourite and Breadfruit. In the local class for six dishes Mr. Dallachie took the lead with good dishes of Early Vermont and Porter's Excelsior, other kinds being such as already enumerated. Mr. T. W. Green and Mr. L. F. Turner second and third respectively; the former having good Covent Garden Perfection, and the latter Beauty of Hebron.

For three dishes of Tomatoes Mr. G. Conden, gardener to Wm. Chambers, Esq., Wallasey, was first with good examples of Wallasey Surprise, a grand corrugated variety; Orangefield and Conqueror. Mr. C. Finnigan followed with Stamfordian, Trophy, and President Garfield, very large corrugated fruit. Mr. Ward, Shropshire, third. For one dish Messrs. Sherwin, Conden, and Finnigan were the prizetakers. Mr. A. R. Cox was first for a brace of Cucumbers with Model. Mr. Buttler, gardener to T. Drysdale, Esq., second with Baldwin's Perfection; and Mr. Stephenson third with Defiance.

Miscellaneous Exhibits.—Mr. B. S. Williams, Victoria and Paradise Nursery, contributed a large and varied assortment of choice plants, including all the Holloway novelties. Messrs. R. P. Ker & Son a similar group, including some remarkably fine Crotons and Gloire de Dijon Roses in 8-inch pots, with growths fully 12 feet in length. The Liverpool Horticultural Company (John Cowan) also staged a very interesting group of stove and greenhouse flowering and foliage plants, Vines in pots, and a beautiful circular group of clean healthy Tea Roses in 6 and 8-inch pots, which added materially to the beauty of the Exhibition. Mr. Hooley, Edgley Road, was awarded a certificate of excellence for a group of well-grown Bouvardias. Similar awards being granted to Messrs. J. Laing & Co., Forest Hill, London, for a superior collection of Tuberous Begonias; and to Messrs. Cannell & Sons, Swanley, Kent, for a handsome collection of cut flowers, including double and single Petunias, Pelargoniums, an excellent assortment of Verbenas, and his new double Pansy Lord Waveney, which was certificated. Messrs. J. Dickson & Sons had a number of well-grown pot Vines and baskets of Figs, Osborn's Prolific fruiting freely in 6-inch pots. Messrs. Dickson & Robinson contributed boxes of cut Roses. Mr. James Tynden, Liverpool, staged a box of Gladiolus The Bride, which was much admired. Messrs. Kelway & Sons, Langport, had a wonderful collection of Gladioli remarkable in colour, size of spikes, and flowers, also a grand assortment of single Pyrethrums which arrested much attention. Mr. Amos Ledsham, market gardener, Wallasey, Cheshire, submitted an extraordinary example of fasciation in the Cucumber; the flattened stem exceeding 3 inches in diameter, and in the space of 3 inches a remarkable cluster of thirteen average fruits were produced.

Implements.—The following were highly commended by the Judges. Messrs. Messenger & Co., Loughborough, for garden chair and Loughborough boiler; Messrs. J. Webster & Co., Wavertree, for garden handlights; Mr. R. Rushton for edge-clipping machine; Messrs. Halliday & Co., Middleton, Manchester, for horticultural buildings; and Mr. F. Mee, Wood Street, Liverpool, for boilers and general work.

ORCHIDS IN AUGUST.

THE majority of Orchids are now ceasing flowering, and it is a good time to attend to the Lælias and Cattleyas. These will only require a top-dressing of fresh material if the plants look healthy and fresh, as they are impatient of repotting, but where they seem shrivelled and sickly it is better to repot them at once. It will be advisable also to look for white scale that appears with the young growths, which should be carefully sponged with tepid water and soft soap.

Amongst the plants now in bloom may be noticed Brassia Lawrenceana, which is at its best, bearing its deliciously scented pale yellow, brown-spotted flowers, and Brassia Wrayæ with its yellowish green, brown-spotted blooms, lasting a long time in perfection. These though not very showy are still acceptable, as they fill up the gap between the summer and winter-flowering Orchids. The spikes are very suitable for filling vases and cpergnes, and a fine specimen well flowered is by no means un-ornamental; they are of easy culture, and do well in an ordinary stove where room is no object. When they have flowered they

should be kept somewhat dry, but not allowed to shrivel, until the new growths produce roots, when water should be given more freely.

Cattleya crispa with its beautiful large flowers is exceedingly fine, as is also *Cattleya crispa superba*, a superior variety of the former, being larger, and the lip of a deeper crimson colour. *C. Eldorado* and its varieties bearing flowers from a pure white with orange throat and white lip, to a deep rose with yellow throat and purple lip, are now blooming finely. *C. guttata Leopoldi* is exhaling a powerful clove-like odour from its lovely brownish yellow, purple-spotted blooms with velvety purple lip. *C. labiata picta*—this beautiful variety of *labiata* is now producing its bluish-coloured flowers with crimson lip elegantly margined, and remains a long time in perfection.

Disa grandiflora with its brilliant vermilion, green, and yellow flowers is exceeding attractive. *Maxillaria venusta* is bearing its charming pure white yellow-lipped flowers which are very fragrant, while *Maxillaria nigrescens* is producing its dark port-wine-coloured flowers, exhaling a Melon-like odour. *Oncidium incurvum* with its numerous pale lilac and white flowers is now in grand condition.

Saccolabium Blumci is pretty with its arching spikes of numerous white, rose-stained blooms, which remain in beauty for about three weeks.

Stanhopea insignis, *S. oculata*, and *S. tigrina* are all bearing their charmingly sweet-scented flowers; the latter being the largest and most richly coloured of the genus. *Trichopilia picta*, with its yellowish-green blooms and creamy-white lip spotted with rose, is also in flower.—ORCHIDIST.

REVIEW OF BOOK.

Report of the Experiments on the Cultivation of Different Varieties of the Potato. By THOMAS CARROLL, ESQ., Superintendent of the Agricultural Department.

THE experiments made at the farm of the Munster Agricultural and Dairy School under the superintendence of a Committee of the County of Cork Agricultural Society and embodied in the Report before us were undertaken (1) to compare a number of the Potatoes generally cultivated, in order to discover what kind or kinds would best resist disease and produce the largest amount of food, and (2) to test the merits of potash salts, phosphates, and nitrogen both in the "hydrogenised or ammonia form, and in the oxidised or nitrate form." We are told that since the reading of a paper calling attention to the necessity of improved methods of cultivation by P. W. Ogilvie—a Scotchman evidently, as well as the Chairman—that a great change for the better has taken place both in the quality and quantity of Potatoes in the south of Ireland. It would have been interesting to know in what way such a revolution has been brought about, for "a great change for the better" is exactly what the agriculturists of the whole world want. On this head nothing further is stated, but in the report that follows many valuable hints are to be found, and to a few of these we would specially direct attention.

A number of French and German varieties were grown along with American and home kinds. Some of the Americans did well, but the French and German kinds for the most part did very badly; the crops were small, and even that small quantity was much diseased. Curiously Reading Abbey, a kind sent out as a disease-resister, proved the worst. We in a very different climate have found the same thing. Victoria, at one time the foremost among disease-resisting kinds, also fared very badly. As some varieties escaped disease, although growing beside badly affected varieties, the reporter considers the disease as "non-contagious." Nothing but a profound ignorance of the nature of the disease could have led to such a conclusion. The fact proved seems to be, not that the disease is not contagious, but that "disease-resisting" is a proper epithet to apply to such varieties as escaped.

As showing the influence of good or inferior seed on the ultimate yield, it is curious to observe that seed from one firm manured with ordinary farmyard manure at the rate of 30 tons per acre produced in one instance 13 tons 16 cwt. per acre, and in another 14 tons, while that from a different firm under precisely the same conditions gave only 11 tons 18 cwt. Under the same conditions American Chili gave 14 tons 1 cwt.; Brown Rock, 14 tons 2 cwt.; and White Rock, 11 tons 16 cwt., with very little (in one instance no) disease; so that Champion (Carter's), which gave 11 tons 8 cwt., with 11 cwt. of diseased, is by no means unique either in its yield or disease-resisting powers. Indeed, in this experiment Magnum, Prince Frederick Charles, Black Apple, Redskin Flourball, Brown Black, Moray Blue, Brinkworth's Fortyfold, White Rock, and Skerry Blue are before it, for they were quite free from disease. Unfortunately not a word is said about the table quality of any of these kinds, some of which, in one district at least, are hardly fit for pigs.

In the experiments with special manure Scotch Champion was the variety fixed on. Nothing can be said against the confining of the experiments to one variety, but when that variety is perhaps the most robust in general cultivation it does not follow that the results can be trusted. Many excellent Potatoes require a strong start to enable them to "forage" with effect, whereas the Champion, in common

with a few others, possesses, as we have said, an extremely robust habit and unequalled foraging powers; so much so, in fact, as to make it an exterminator of most ordinary kinds of vegetation, and an effectual impoverisher of any but the richest soils. Should the same experiments be repeated with weaker kinds it is just possible that very different results might be the consequence.

Unless we were to reproduce the tables it would be impossible for us to go over the ground indicated in the Report. In the case of sulphate of ammonia alone we find that 2 cwt. produced 7 tons 15 cwt., but that 4 cwt. only gave 6 tons 17 cwt. Although it is not stated, we suppose the extra application had caused a too great growth of haulm, which often detracts from the underground produce. It was the same with nitrate of soda; 2 cwt. produced 9 tons 8 cwt., while 4 gave only 6 tons 17 cwt. When the ammonia salt and the nitrate were combined the same result followed—too much reduced the crop. We ourselves by sheer dint of heavy manuring have produced Champion shaws 6 feet high with hardly any produce. Sulphate of ammonia and kainit gave 12 tons 10 cwt., and kainit combined with the nitrate gave 11 tons 19 cwt. Phosphates without potash salts gave good results. Sulphate of ammonia and alta vela phosphate gave 10 tons 6 cwt.; but with bone superphosphate the result was only 3 tons 19 cwt., or more than a ton under the yield when no manure at all was given—rather a blow to the manufacturers and manufacturing chemists who put bone higher than mineral, and dissolved higher than undissolved phosphate. With nitrate of soda, however, rather a different story is told. Possibly the excess of acid might be neutralised by the soda liberated from the nitrate of soda, just as Mr. Jamieson found nitrate of soda neutralise the evil effects of chloride of potash. When sulphate of ammonia was given the evil would be increased, hence the very small crop.

In all the other experiments with phosphates sulphate of ammonia gave better results than nitrate of soda, thus showing that the mischief must be attributed to the acid in the superphosphate. Not a word is said on the subject in the Report, which is rather disappointing, for it surely came within the scope of the Superintendent's duty to find out the cause and explain such results. It is rather bewildering to find, too, that while sulphate of ammonia and bone superphosphate gave such poor results, bone superphosphate and sulphate of ammonia gave 11 tons 19 cwt.—a fact which needs an explanation, which is not vouchsafed. Bone superphosphate and kainit gave 13 tons 19 cwt., while kainit with mineral superphosphate gave 14 tons 13 cwt.—a large yield, but exceeded by kainit and alta vela phosphate, which gave 15 tons. Kainit alone (2 cwt.) gave 13 tons 19 cwt.; double the amount, 14 tons 6 cwt. Kainit and curagoa phosphates gave 15 tons 19 cwt.—a fact which seems to prove that nitrogen may be dispensed with, although we think it a pity that nitrogen should not have been given along with both kainit and phosphates. Farmyard manure collected in the ordinary way and applied at the rate of 30 tons an acre (we presume) gave 13 tons 15 cwt. The same amount collected under cover produced 16 tons 13 cwt. This is a lesson that should be taken to heart, for less material is required to produce a given amount of manure in covered sheds, the rain washing the very best away from that which is exposed. As sulphate of ammonia along with kainit did not increase the crop very much, we hardly know whether to attribute such a remarkable increase in the produce to the greater amount of nitrogen in the manure, or the greater amount of potash salts in which urine is known to be rich, or to both; but taking into consideration the effect of kainit, possibly the potash had most to do with it. As, however, kainit itself is a complicated compound, such reasoning is not safe, even though the chemist employed by the Association tells us that the other matters have "no disturbing influence." This we know to be a mistake, as proved by the falling-off in the crops in the case of the highly scientific experiments under the auspices of the Sussex Association, when magnesia, for instance, was withheld. Kainit, we are told, was chosen because of its cheapness. Scientifically this was a blunder—different forms of pure potash salts should have been used if the object was to ascertain the value of potash for Potatoes. Practically the blunder was a happy one if anything approaching the results gained at Munster Farm can be secured generally with such a cheap compound as kainit is.

One of the things insisted on in the Report need hardly have found a place because of its fallaciousness and because of its being universally followed. We refer to changing the seed. That when Potatoes are badly cultivated and the tubers selected for seed are carelessly selected a change is beneficial we will not seek to deny, and if we did would be speedily and successfully controverted. But we have repeatedly proved, and anyone may profitably prove it, that when Potatoes are really well grown, the seed carefully selected and preserved, improvement and not degeneracy results. To our loss we have found a change of seed under such circumstances not an advantage. Even in the Cork experiments different samples from different sources gave very different results, pointing not so much to the necessity for change in seed as for quality in it. This view we know to be exactly the reverse of orthodox, but it is hardly a matter for opinion seeing anyone can test the matter for himself.

Space forbids us either quoting or further noticing more, but we recommend the Report as well worthy a perusal from which many fruitful hints may be gathered. If we have sometimes in our short notices pointed out what, in our opinion, has been done too much in a haphazard way we hope to be pardoned, for our object is to do a

little towards making such experiments more exact, more scientific, and therefore more useful, and the results more generally applicable. Out of the mass of facts that are being patiently unearthed we ought by-and-by to be able to gather something that will raise our agriculture to a higher pedestal and plant it on a securer foundation.



STRAWBERRIES IN POTS.

THESE should now be transferred to their large pots, as it is best performed when the runners have filled the small pots with roots. For early forcing 5-inch pots are most suitable, as the kinds adapted for this purpose are moderate growers, and for the successional crops 6-inch pots are ample, whilst for late forcing and for strong-growing sorts 7-inch pots may be used. The pots should be efficiently drained, and the soil can hardly be made too firm. Sufficient space should be left for watering, as copious supplies are required. The plants should be placed in an open situation, being on a bed of ashes or other material impervious to worms. Avoid crowding the plants. Each should have sufficient space for development. Good turfy rather strong loam is the most suitable material for potting, with about a fifth of well-decayed manure incorporated. Runners layered into large pots may, now they have become well established, be detached from the parent plant, and removed to a situation where they can be more conveniently watered. Keep them free from weeds, and remove all runners as they appear. When the plants have filled the pots with roots liquid manure may be advantageously applied, as the finer the crowns the stronger will be the trusses of bloom.

FRUIT HOUSES.

Pines.—The suckers, which were produced by the early summer fruiting plants, will now be started. The treatment most suitable to such plants was indicated in our last calendar under this head, which should be continued until growth in the plants is perceptible, when shading should be gradually discontinued and more ventilation given on all favourable occasions. Pine plants in all stages of growth will now advance rapidly, providing they have the necessary attention. See to the state of those beds which have been upset or renewed by the removal of the fermenting beds and replacing of plants, not suffering the heat at the roots to exceed 95° without at once raising the pots, and placing a piece of slate beneath them so that they may stand clear of the material of which the bed is composed, as the consequences resulting from inattention to this matter would be most disastrous, especially in the case of fruiting plants. Shading, which is advisable in houses or pits where the plants are grown near the glass, particularly those having large panes, for an hour or two at mid-day when the sun is powerful, is highly beneficial to both plants and fruit during May, June, and July; but this should now be discontinued, and the plants exposed to every ray of light, with a plentiful supply of air when the temperature in the house stands at from 85° to 95°. Fruiting plants must have a night temperature of 70° to 75°, and successional stock 65° to 70°.

Vines.—Muscats, Lady Downe's, and other late Grapes, to insure their keeping fresh and plump through the winter, should be ripe and well finished off by the second or third week in September. To effect this a little fire heat will be necessary to maintain a maximum temperature of 85°, and a minimum temperature of 70°, with a steady circulation of air day and night. Assuming that the roots were well supplied with water and mulchings during the swelling period, healthy Vines under this treatment will be certain to afford satisfactory results; but where there has been any neglect during the swelling process it may be expected to show itself during the ripening in imperfect colouring and shanking. Keep the laterals well stopped; and although Muscats cannot endure the direct rays of the sun through large panes of glass, they must have plenty of light to ensure the golden colour characteristic of good finish. Examine

the borders inside and out, and if at all dry soak well with tepid water. Red spider is unusually troublesome, and it is necessary to dress the pipes with sulphur upon its first appearance.

Late Hamburgs will only require fires to maintain a night temperature of 60° to 65°, and 70° to 75° in the daytime, advancing to 85° from sun heat, ventilating from 75°, and freely between 80° and 85°. See that there is no deficiency of moisture in the borders, and if necessary afford tepid water or liquid manure at 80° liberally. Moderate extension of the laterals may be allowed where the Vines are carrying heavy crops of fruit, and especially when the Vines are weakly, otherwise keep the laterals well stopped. Houses with the Grapes colouring should have a rather dry warm circulation of air day and night, giving what air moisture is needed by damping the borders in the early part of the day.

Very early Vines having the wood fully ripe may now have the laterals cut back close, and in a few days some of the longest shoots can be shortened back, but defer the final pruning until the leaves are all or nearly all down. The outside border should be protected with some waterproof material to ward off heavy rains, as a saturated condition of the soil is not conducive to early and complete rest. The borders of early houses must be renovated, as it is always desirable to keep the roots of the Vines near the surface. Remove the old surface soil without injuring the roots; supply good loam, with which has been incorporated a small proportion of crushed bones, wood ashes, and charcoal.

Vines in pots intended for very early forcing now have the wood ripe, and will rest all the sooner if moved into the open air and placed at the south side of a wall or fence, to which the canes should be secured to protect them against injury from wind. Provision should also be made to protect the roots from heavy rains, which would prove injurious by destroying the roots, and overdryness is equally so, hence extremes should be avoided. If by any means the canes are not ripening well fire heat should be applied forthwith, and be accompanied with abundance of air. All attempts at lateral growth should be checked by pinching, but all the old foliage should be retained and allowed to fall naturally. Ripe Grapes will require frequent examining for the removal of shanked or decayed berries.

Melons.—Place the last batch of plants out at once, and maintain a moist genial condition of the atmosphere with a temperature of 70° at night, and 75° to 85° or 90° in the day, with ventilation upon all favourable occasions, seeking by a firm condition of the soil and not too moist a condition of the soil and atmosphere a short-jointed, sturdy, solidified growth. Remove every alternate lateral as soon as they appear, and stop the primary growths when they have extended two-thirds across the trellis, pinching the laterals at the second joint if they do not show fruit at that on the first laterals. Commence fertilising the blossom when three or four on a plant are expanded, and do so daily until about half a dozen fruit on a plant are set and swelling, when all above that number should be removed. If the plants are weakly about three or four fruits to a plant will be sufficient. Keep the laterals closely pinched and well thinned, so as to give the principal foliage the full benefit of sun and air. Earth up the roots after giving a good watering when the fruit is fairly swelling. Dispense with fire heat as long as possible by the husbanding of a good sun heat, closing the ventilators early in houses with growing crops, maintaining a moist atmosphere to all plants not setting or ripening the fruit. Shade no more than is absolutely necessary to prevent flagging and scorching.

Cucumbers.—Plant the autumn fruiters on raised hillocks or ridges made moderately firm. Where autumn-fruiting plants are not grown, seed to raise plants for winter fruiting should be sown, so that the plants may be sturdy and fit to place out not later than the middle of September. Telegraph is one of the most reliable sorts. Let the work of trimming plants every week be regularly attended to, removing the exhausted growths to make room for young bearing wood. Maintain a healthy root-action, not allowing to become dry at the roots, supplying liquid manure. Shade only to prevent flagging and scorching. Syringe freely as early in the afternoon as the brightness of the sun will permit, closing the ventilators for an hour or two, and afterwards reopen them for a short time to allow of the

escape of rank steam and moisture, it being essential that the foliage be dry before night.

PLANT HOUSES.

Stove.—Gesneras of the zebrina section must not be placed under the shade of other plants, but must have a light position to induce stout short growth, which is essential to their free flowering and the development of their handsome foliage. They should have weak liquid manure occasionally, and not be too freely watered, nor must the foliage be allowed to flag. *G. Cooperi* and *G. Donckelaari* will, if well attended to, throw up second flowering shoots, and bloom well if encouraged with liquid manure and kept in a light position.

Gardenias from cuttings struck in spring and grown on for winter flowering should be well attended to, not allowing them to become root-bound, but shifting into the blooming pots—6 or 7-inch—at once, so as to get them well established before the short days. Every care should be taken to keep them free of mealy bug and other insect pests. They should be grown in plenty of light, so as to harden the growth and induce free-flowering.

Pancratiums caribbæum, *fragrans*, and *ovatum* bear large umbels of pure white fragrant flowers from June to August; the flowers, of lighter appearance and greater elegance than *Eucharis*, and expanding successively, are very useful for cutting, being very chaste for bouquets. They are of easy culture, and should have a place in every stove. Turfy yellow loam with a fifth of leaf soil or well-decayed manure and a slight admixture of sand suits them perfectly. Plants that have flowered will be starting into growth, and should be well supplied with moisture both at the roots and in the atmosphere, feeding occasionally with liquid manure, as the finer the growth and bulbs the stronger they will throw for bloom. A position near the glass should be given them to insure thick leathery foliage. Being evergreen they ought not to be dried off, but have the soil always moist; lessened supplies of water, however, being necessary when at rest than during growth. *Amaryllises* having completed their growth should have a light airy position, or may be stood in a pit and have water to maintain the foliage in good condition to the last, keeping them free from red spider by syringing, or the leaves should be sponged with soapy water occasionally. A little weak liquid manure occasionally will assist in developing fine bulbs, which invariably throw the finest flower scapes.

The earliest-flowered *Gloxinias* may now be gradually dried off, not withholding water altogether, but giving sufficient to keep the foliage from flagging. Any choice varieties may have the leaves inserted in sandy loam around the sides of a 6-inch pot; and kept close, moist, and shaded from bright sun in gentle heat, they will soon form a bulbous callosity, and be available for next year's flowering.

Toxicophlæa spectabilis and *T. Thunbergi* are well worth growing for their odour, a few flowers scenting a house. The flowers are white, borne in corymbs (not unlike an *Ixora*) from the points of the shoots and axils of the leaves. They do best in an intermediate temperature or cool stove, and do not require a great amount of root space, thriving in sandy peat. *Jasminum gracillimum* promises to be one of the finest of winter-flowering plants for decorative purposes and for cutting from. It is of free growth, and blooms profusely, the flowers being borne in a cluster, pure white and very fragrant. It is of very easy culture, doing well in sandy loam with a little leaf soil. It should be now placed in plenty of light to harden up the growth, and it will flower in October through the winter. Plants well bloomed in 6-inch pots are fine for table decoration, its graceful habit peculiarly fitting it for that purpose.

Climbers trained to the rafters improve the appearance of the house, and where cut flowers are in request in quantity it is absolutely necessary to have such plants as *Clerodendron Balfourianum*, *Bougainvillea glabra*, *Allamandas Hendersoni*, *nobilis*, and *cathartica*, along with *Dipladenia Brearleyana* and the indispensable *Stephanotis floribunda*, are better planted out, but if allowed to become too large they do serious injury to the plants beneath by excluding the necessary light. Climbers in restricted borders should be well supplied with liquid manure.

THE BEE-KEEPER.

AUTUMN TREATMENT OF STOCKS.

THE present season from its beginning till now (August 5th) has been unfavourable for bees and most discouraging to young apiarians. Owing to last winter being open and warm, bees, generally speaking, consumed most of their stores, and therefore their hives were unusually light in spring, and in most cases and places have been during the spring and summer months at the doors of poverty. With scant supplies in side hives and gloomy skies above them bees are discouraged, and wisely or instinctively abstain from extensive breeding. In such circumstances bees make little progress, and move slowly up to the swarming point. This season has been a remarkable one for slow growth, drone-killing, late swarming, and unwillingness to swarm at all. In some hives that were heavy in autumn the bees have neither felt nor feared the approach of poverty, and have done better. Bee-keepers of experience know that hives with sufficient stores in them are less affected by unfavourable weather, and continue to multiply their numbers often, while weaker hives abandon breeding and cast out their drones. Bee-keepers have had abundant evidence of this during the last few years, and every year's experience strengthens and deepens our convictions on the subject. In September at latest bees should have stores enough laid up to keep them till the end of the March following, so that feeding is unnecessary during winter and early spring. About 15 lbs. of honey or syrup keep a large swarm or stock from September till March. A straw hive and board weigh about 10 or 12 lbs.; bees from 5 to 8 lbs.; combs-farina about 7 lbs., 15 lbs. of honey, thus making a good stock about 40 lbs. in weight. Boxes and bar-frame hives are considerably heavier than straw, and therefore their weight in September should be rather more.

In apiaries kept for profit autumn treatment is considered a point of the greatest importance. Hives properly treated in August and September need but little attention in winter and spring, cause no anxiety or fear, but foster hopes of a successful future. To have strong hives in autumn should be the aim of every bee-keeper. The great secret of success lies here, and therefore let us here notice some points of importance in autumn treatment. At the end of the season, when hives begin to lose weight, one of the first things to be done is to select hives for keeping another year. The best for this purpose are those that are full, or nearly full, of young sweet combs straightly built, the central combs well filled with brood and without many drone cells. The longer we practise bee-keeping the more clearly do we see the importance of having the apiary filled with stocks with young combs. This statement has been often repeated, because it cannot be too well or widely known. Old combs are objectionable from every point of view. The central and greater parts of the combs of every hive are filled with brood several times every year, and every cell becomes less by the cocoon or skin of every bee reared in it. The walls of the cells become thicker, and in this way the cells are contracted and give less space for the development of brood and for the storing of honey. Old combs often become filled with pollen, and are then worse than useless, for they occupy space and cannot be used for either breeding or storing purposes. Foul brood, the scourge of many an apiary, is very rarely found in young combs; and if the practice of changing stocks every season be followed foul brood will never do much harm and need not be feared. Hives, then, with young combs are to be preferred for stocks.—A. PETTIGREW.

(To be continued.)

FORECASTS OF VARIOUS KINDS.

THE EFFECTS OF COLD—POLLEN-GATHERING—INFERTILE QUEENS.

THE milder the winter the more complete will be the repose of the bees, and the lower will they be able to allow the temperature to become even when they have their winter quarters, whilst increasing cold stimulates them to breathe more frequently and to consume more food; in other words, it stimulates their vital powers to greater activity in order to be able to offer the necessary resistance to the cold. It will be seen from this whether it is advisable to keep bees exposed to the cold in winter. Theory and experience, as well as the last mild winter, demonstrate to us practically the fallacy of this opinion. Exposure of the bees to extreme cold certainly causes them to crowd together into as thick a cluster as possible, but it does not send them into a sleep-like state of repose. On the contrary, it startles them out of their rest,

compelling them to hum more loudly, while previously they were in perfectly silent repose. Nor does severe cold prevent premature breeding. There is generally more brood to be found in the hive in January and February, when the weather is very cold or after the temperature has been very low, than during a continuance of mild weather. Dr. Krasicke acknowledges this fact, but explains it in a peculiar manner by saying that because bees consume more food when the temperature is low, the production of chyle would also be greater. But it is a known fact that in order to create a higher degree of temperature bees consume a large quantity of honey only. The latter, however, only supplies an increased quantity of excrementitious matter as secondary product, but no chyle. The presence of much excrementitious matter in their bodies, on the contrary, renders the bees more incapable of producing chyle. It is the disturbance of their rest and incitement to activity in order to raise the temperature which also directly affects the queen, inducing her to deposit eggs sooner than she would have done if the weather had continued mild. The principal cause of early breeding, however, is the presence of much moisture, which forms inside the hive when the temperature outside is lower; water, as is well known, forming by far the largest constituent of the food of the brood, and want of water prevents or restricts breeding.

During mild weather, when the difference in the temperature of the air inside and outside the hive is but insignificant, little or no moisture is precipitated, just as the windows of our rooms condense no moisture then. At such a time the bees may be suffering from want of moisture, but as long as the suffering does not become acute it does no harm. It has rather the advantage that it keeps the bees back from breeding until they are able to fetch in sufficient quantity the water which is indispensable in the preparation of chyle. It is best that breeding should be delayed till such a time when the bees are able to gather fresh pollen in considerable quantity, as many colonies, especially young stocks, possess but a small stock or none at all of this material, which cannot be dispensed with when food is to be prepared for the brood. This is generally the case at the time of flowering of the Alder tree, so that hagsful might be collected from many trees, especially from those in isolated positions, and the bees might supply themselves from this source with pollen for the whole year. If favoured by the weather they could take full advantage of the Alder flowers, which mostly make their appearance in March. Unfortunately, however, on account of the uncertainty of the weather at that time of the year, the pollen harvest is frequently a complete failure; and should the weather happen to be favourable, the flowering time of the Alder passes too quickly to be fully utilised. The flowering season of the Alder might be artificially prolonged if branches with plenty of flower-buds were cut off and kept in a cool and shady place until the flowering time was coming to an end, when they might be put into the ground in a sunny spot near the apiary. But on account of the uncertainty of the bees being able to fully utilise these flowers, even if in the neighbourhood of the apiary, we might render them a far greater service if we took the trouble at the time of falling of the Alder flowers to collect the pollen which Nature offers in such abundance in order to supply the bees with it. We might perhaps moisten it with honey and squeeze it into the cells.

I have taken this trouble in former years, but found it rather a tedious and troublesome labour, and I have often asked myself the question whether it would not be possible to obtain the valuable substances which pollen contains—viz., the nitrogen, the essential oils, the ferments and salts from the entire buds, if these were collected before the pollen became scattered abroad by the wind, either by a process of drying or roasting, by pulverisation, or dissolved as a kind of tea, and to make them palatable to the bees by mixing them with honey. The solution of this question would be a worthy and most commendable task for bee-masters who at the same time are thorough chemists.

It would certainly be better if the various artificial contrivances to keep our bees supplied with the substances their economy requires were not needed. The weather late in last summer and in the autumn was most unpropitious for the impregnation of queens, and in this district at least rendered it altogether impossible. In former years it was a rare exception in my apiary to find queens remaining unfertilised even if reared late in the season. Even about Michaelmas, when one would naturally expect all drones to have disappeared, my queens still became fertile if only a few really fine days intervened to allow them to fly out again and again, and often far away from their hive. In the year 1867 the weather during the whole month of September was inclement and cheerless, and not one young queen became fertile, but on the 8th of October a calm, warm, and sunny day followed. After the bees had been playing joyfully I examined several hives with

young queens in the afternoon, and found that eight of them exhibited the sign of impregnation; in fact, all my queens qualified for impregnation became fertile, although the number of drones in my apiary scarcely amounted to a hundred.

All the young queens which had not become impregnated at the time of our meeting at Erfurt last year remained unfertile, and had finally to be thrown away as worthless. Warned by this experience I examined afterwards five parent hives, in which I certainly did not expect a change of queen to have taken place, and discovered either no queen at all or a virgin queen, and was obliged to unite these stocks with smaller colonies, as I had no longer any spare queens at my disposal. In this respect the mild weather which prevailed late in the autumn, and even this winter, was also very welcome, as it enabled operations to be performed which in colder weather could not very well have been attended to.—DR. DZIERZON, *Carlsmarkt, 11th January, 1882.*—(From the *Bienenzeitung*, No. 4, 15th February, 1882. Communicated by Mr. Alfred Neighbour.)

BRITISH BEE-KEEPERS' ASSOCIATION.—The annual Exhibition of this Association was held in the east and west quadrants of the Royal Horticultural Society's Gardens from Thursday the 3rd instant to Tuesday the 8th. Exhibits were numerous, hives of all the most approved forms, samples of honey, extractors, sections, artificial foundations, and other appliances useful to the bee-keeper being largely represented. A tent was also provided, in which demonstrations of the chief operations in connection with the apiary were frequently given.

TRADE CATALOGUES RECEIVED.

Wm. Cutbush & Son, Highgate and Barnet.—*Catalogue of Bulbs.*
Wm. Paul & Son, Waltham Cross.—*Catalogue of Bulbs.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Seedling Achimenes (G. H.).—The majority of the flowers had fallen off the specimen you sent, but from what remained it appears to be a pretty and distinct variety, though the blooms are small. We doubt if it would possess any trade value, however, as there are many more showy varieties in cultivation. Its dwarf free habit is a recommendation, and you should certainly give it a good trial before discarding it.

Exhibiting (A Reader).—According to the terms of the schedule, if the gardeners you name showed produce grown in their employers' gardens they should certainly have been disqualified, but of course in any proceedings that may be taken it will be necessary to prove that point, and possibly this may be rather difficult. It is manifestly unfair and contrary to the spirit of the regulations in the schedule that the two classes of exhibitors which you term A and B should be allowed to compete together, as the latter would have greatly the advantage. Have you directed the attention of the Secretary and Committee to the matter? If not, that course would be advisable before proceeding further.

Raspberry Canes Dying (J. E.).—The most common cause of the canes dying is the wood being dry in the previous season, and consequently not well ripened. Such growths usually fail in the early part of summer during the prevalence of east winds or sharp frosts. There is no remedy except a less rich and firm condition of the soil, so as to induce shorter-jointed and more solidified growth, leaving sufficient space between the stools to admit light and air freely. The canes sometimes die through being pruned and tied during frosty weather, which injures their tissue.

Late Strawberry (Idem).—Helena Gloede is larger and later than Frogmore Late Pine, and in every way superior. It does best on heavy land, being on light soils much subject to mildew. Loxford Hall Seedling is a very fine variety; it succeeds well in heavy soil, and for travelling is one of the best. Pioneer is a fine early kind, and succeeds well in heavy soil.

Elaterium (C. L., Surrey).—The drug bearing this name is obtained from a plant related to the cucumber, *Ecballium agreste*, or Squirting Cucumber, which is as you state cultivated at Mitcham. The fruit is like a small oval cucumber, about an inch and a half long and an inch in diameter, and is covered with stiff hairs or prickles. When fully ripe it separates from the stalk, and throws out its juice and seed with considerable force through an opening at the base, where it was united to the stalk; it is from this circumstance that the name is

derived. When the fruit is sliced and placed upon a sieve a perfectly limpid and colourless juice flows out, which after a short time becomes turbid, and in the course of a few hours begins to deposit a sediment. This, when collected and carefully dried, is very light and pulverulent, of a yellowish-white colour slightly tinged with green; and this is genuine elaterium, which will purge violently in the dose of one-eighth of a grain. The mode in which it is obtained at Mitcham is to slice the fruit longitudinally in halves, and then press it with considerable force, wrapped in a hempen cloth, with a common screw-press. The juice is then strained through a hair or wire sieve and set aside to deposit, which usually is completed in three or four hours. The liquor is then carefully poured off, the deposit is placed on calico cloths resting on hair sieves, and allowed to drain for about twelve hours, after which it is removed with a knife, spread over small cloths, and dried on canvas frames in a drying stove. About half an ounce of elaterium is obtained from 40 lbs. of the fruit.

Learning Gardening (Wild Rose).—There is a great difference between what you said in your previous letter and in the one now before us. There are many, we fear, who have not so much time for study as is desirable; still by utilising even odd moments diligently an earnest man will not fail. You had better work perseveringly in a small place for a year or two, not attempting what is beyond the resources of the garden, but whatever you undertake do well. First experiment with such free-growing plants as Coleuses, Fuchsias, Chrysanthemums, Pelargoniums, Balsams; then as you succeed with these you will be gathering knowledge that will enable you to grow such other plants as are within your means. Vine culture is easily learned. We do not advise at first to procure the expensive work referred to, but get the "Cottage Gardener's Dictionary" (price 7s. 6d.), our "Garden Manual" (price 1s. 6d.), our "Vine Manual" (price 3s.), "Pearson on the Vine" (price 1s.), our "Window Gardening" (price 9d.), and "Greenhouse Manual" (price 9d.). You will thus at a trifling outlay have a small gardening library of great value. But apart from the information contained in these works you must study current gardening literature. Read the *Journal of Horticulture* regularly and attentively, and never a week will pass that you will not obtain knowledge that will bring you nearer the goal you appear to be laudably desirous of attaining.

Ornamental Cucurbits (Lorimore).



Fig. 24.—*Cucurbita melopepo depressa*.

vol. iii, new series. The seeds of all such plants should be sown in heat, afterwards affording them similar treatment to Cucumbers—namely, a good temperature and abundance of water.

Clematises in Pots (J. E.).—The following particulars respecting the culture of Clematises in pots were given by Mr. Bardeney on page 349 in No. 45, vol. ii, new series:—If the plants are in 5-inch pots when obtained, and are well rooted, they should be transferred to 7-inch pots. The pots should be well drained, the old drainage being removed and the roots disentangled. This operation will cause no injury, as they are strong-rooting plants. Potting is best done a short time before the plants are started into growth. A shift into a larger pot every year, according to the progress they have made, is sufficient until they are placed into 10 or 12-inch pots, which are large enough for decorative purposes. When in the last-named size annual potting is still recommended—that is, by removing a portion of the old exhausted soil, renewing the drainage, and again placing them in the same sized pot with fresh soil. The soil cannot be too rich; good rich loam, a third of decayed manure, and coarse sand to render the whole porous will suit them well. While growing Clematises require liberal applications of water at the roots, and in no stage should the soil be allowed to become very dry. When the pots are full of roots stimulants can be liberally supplied. After potting, if the plants are placed in a temperature of 45° to 50°, they soon commence growing. When the wood is nearly mature the shoot can be tied to stakes and the plants placed outside, where they may be allowed to remain until the approach of frost, and then be protected in a cold frame or house. The earliest-blooming varieties of the Patens section, of which Lady Londesborough is the type—one of the freest, earliest, and best for forcing—will, if gently started at the commencement of the year, produce a few flowers in the spring. This section furnishes the most varieties suitable for pot culture, especially for early flowering during February, March, and April. Most of the varieties flower profusely and require no pruning, as the flowers are produced on the previous year's wood. There is but little difficulty in inducing plants to flower early; one or two seasons' early starting is sufficient. Our plants commence growth in a cold frame towards the end of November. The following varieties are arranged in the order they flower:—Lady Londesborough, Standishii, Miss Bateman, Albert Victor, Lord Londesborough, The Queen, Sir Garnet Wolseley, Fair Rosamond, and Sophie flore-pleno. Some further particulars are also given in the same article upon propagating Clematises.

Layering Carnations (A Young Gardener).—Layering should be done as soon as possible after the shoots are long enough to be pegged down easily, and in the following manner, as detailed in our manual "Florists' Flowers for the Many." A layer is a branch or shoot brought down to the ground, and when rooted separated from its parent. The materials wanted for layering are a sharp small knife, a quantity of hooked pegs (the fronds of the common Brake or Fern are the best, though the pegs may be made of Birch or Hazel), and some finely sifted soil. When the shoots round each plant have made five or six joints or pairs of leaves, choose a dull cloudy day on which to perform the work; or, if

the plants are in pots under an elevated awning, they may be layered in any weather. Commence by trimming off the leaves from the bottom of a shoot, leaving the two uppermost on and entire. Trim off the lower leaves on every shoot before layering one, because when a layer is tongued it is easily broken off. When this is done take hold of the shoot, turn it up, and pass the knife blade through the third joint upwards, commencing the cut just below it; then reach a hooked peg, thrust it into the soil, catching hold by its hook of the layer as it descends, and press it gently down to the soil. Do the next in the same manner, and so on till every shoot is layered, then cover them all with the sifted mould about three-quarters of an inch deep, and that pot or plant is completed; then give a slight watering, and the layers want no further care till they are rooted, which will be in about a month or six weeks. Examine them occasionally, and as soon as roots are emitted pot them off into 5-inch pots, a pair in each; or, if your space is limited and the layers small, three may be put into each pot. After they are potted they should be placed under glass in a cold frame or pit, plenty of air being given in mild weather and shelter from severe frost when it occurs. Very little water is required through the winter months, and the air in the frame should be kept as dry as possible. Should damp prevail, the plants some fine day should be taken out and fine dry coal ashes spread on the surface. The plants should be replaced in the pit.

Rhynchospermum jasminoides not Flowering (W., Chelmsford).—Overpotting is probably the chief cause of your plant not flowering. Small pots, well-ripened wood, and a moderate temperature are three important points in the culture of this plant. Take your plant out of the hothouse at once to a sunny airy position in a greenhouse or orchard house, give only enough water from the present time till March to keep the foliage healthy, and keep the plant in the greenhouse where the usual winter temperature of 40° to 45° is maintained, thus letting the winter be a period of complete rest. In March cut off any bare old growth and thin any that is crowded, shortening the remainder to induce a plentiful growth of young shoots, at the ends of which the flowers should appear. Just as growth begins shake out the plant from its large pot and examine the roots; if they are crowded in the soil and the drainage is good replace in the same pot, but if there is much soil without roots then remove it and repot in a size or two less, picking as much of the old sour soil from among the roots as possible, ramming hard some fresh sweet soil around the ball. As the growth makes progress give more water, but do not remove the plant from the greenhouse till the flowers fade, then turn it out of doors, standing the pot upon a bed of coal ashes in any open yet shaded nook, and keep it there till the autumn.

The Cherry Plum (J. V. W.).—The fruit you send is known by the above name. It is also known as Early Scarlet, Miser Plum, Myrobalan, and Virginian Cherry. It may be used in the dessert more as an ornamental variety than for its flavour, but it makes excellent tarts. Ripe in the beginning and middle of August. The young shoots are smooth, slender, and thickly set with buds. This is the *Prunus myrobalana* of Linnæus. It is frequently grown in shrubberies and clumps as an ornamental tree, where in spring its profusion of white flowers render it an attractive object.

Names of Plants (Constant Reader).—We do not undertake to name varieties of Coleuses. (X. L.).—1, *Fuchsia gracilis*; 2, *Herniaria glabra*; 3, *Escallonia macrantha*. (W. R. S.).—1, *Pteris quadriaurita*; 2, *Adiantum tenebrum*; 3, *Asplenium cicutarium*; 4, *Selaginella Martensii*. (R., York).—1, *Retinospora obtusa*; 2, *Cupressus Lawsoniana*; 3, *Quercus cerris*; 4, *Thuia orientalis*. (H. H.).—*Rhus Cotinus*.

Removing Supers from Hives (J. McNair).—This is the easiest and most pleasant work of the apiary. First cut the super from the hive by drawing a piece of brass wire or twine between them. If any nails or impediment prevent the wire from cutting them asunder use a thin table knife. Then raise, by using wedges of wood or slate, the super about three-eighths of an inch above the hive, so that the bees will clean out the honey from the broken cells. This they will do well in about an hour. Then get some rags or brown paper dipped in a solution—weak solution—of saltpetre and dried. A few puffs of the smoke and smell of this saltpetre blown in at the top of the super will cause all the bees to leave the super and run downward into the hive with all possible speed. In wooden supers a gimlet hole answers for the admission of the smoke. In glass globes without holes in their crowns let the smoke play on the bees by some means, and the bees will fly out quickly. It is very desirable to get the bees out of supers as soon as possible, so that their combs remain pure and unspotted, and nothing can answer for this better than using saltpetre.

COVENT GARDEN MARKET.—AUGUST 9TH.

THE market is still quiet, owing to the holidays, scarcely any business of note being transacted.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Lemons.....	case 20	0 to 0 0
Apricots.....	box	1 6 2 0	Melons.....	each	2 0 4 0
Cherries.....	½ sieve	0 0 0 0	Nectarines....	dozen	4 0 12 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	100	4 0 6 0
Currants, Black..	½ sieve	5 0 0 0	Peaches.....	dozen	4 0 12 0
" Red.....	½ sieve	2 6 3 6	Pears, kitchen..	dozen	0 0 0 0
Figs.....	dozen	4 0 0 0	" dessert.....	dozen	0 0 0 0
Filberts.....	lb.	0 0 0 0	Pine Apples, English	lb.	3 0 4 0
Cobs.....	100 lb.	0 0 0 0	Raspberries.....	lb.	0 3 0 6
Gooseberries....	½ sieve	2 6 3 6	Strawberries....	lb.	0 6 1 0
Grapes.....	lb.	1 0 4 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Lettuces.....	score	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mushrooms.....	punnet	1 0 1 6
Beans, Kidney....	100	1 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beet, Red.....	dozen	1 0 2 0	Onions.....	beh.	0 6 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 10 0 0
Capsicums.....	100	1 6 2 0	Potatoes.....	cwt.	6 0 7 0
Carrots.....	bunch	0 4 0 0	" Kidney.....	cwt.	6 0 8 0
Cauliflowers.....	dozen	2 0 3 0	Radishes.....	doz. bunches	1 0 0 6
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzoner.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	lb.	0 3 0 0
G rlic.....	lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Tomatoes.....	lb.	0 2 0 4
Leeks.....	bunch	0 3 0 4	Turnips.....	bunch	0 6 0 0



POULTRY AND PIGEON CHRONICLE.

THE NORFOLK OR FOUR-COURSE SYSTEM OF CROPPING.

THIS mode of culture and cropping, which was the regeneration of West Norfolk, was introduced by Mr. Coke, afterwards created Earl of Leicester, and whose spirited farming and development of sheep-breeding and winter-feeding of cattle on an extensive scale, and the expenditure of £400,000 in the erection of superior farm buildings on his estate, which, together with permanent improvements in the use of manures, the use of oil cake, and the liberal system of general improvements in cultivation, induced the farmers of the period to boast that this system had converted West Norfolk from a Rye-growing into a Wheat-growing district. We have chosen to introduce this subject to the notice of the home farmer at this particular time of year, because as fast as the crops of this year's harvest are cleared from the land it is notoriously the best period for arranging or re-arranging any system of cropping which may be deemed advisable to be carried out in the immediate future. In consequence of the change of circumstances which have prevailed for a few years past, it will of necessity oblige the home farmer to consider his position under the altered character of agriculture, and induce him to forecast any changes which may be desirable in the system of cropping best calculated to yield a profit, instead of acting entirely under the influence of former traditions. One great point in his favour is that he is a free agent, more particularly if his employer does not interfere or recommend any special mode of conducting the business of the home farm as regards the cattle and general stock of the farm, including the rotation of cropping. It is frequently made a point that the land shall be managed upon the four-course or Norfolk rotation of cropping, simply because it is so easy to be conducted under a course of cropping laid down, whether it is the four-course or any other. The four-course, however, is the easiest and most regular mode of conducting the home farm, because the cropping is fixed; and there is then only the simple and practical details of the everyday duties to be considered, such as the cultivation, seeding, harvesting, hay-making, and manuring in connection with the rotation proper. There is, however, apart from the course of cropping, the kind of stock to be kept, the further influence of climate on the cultivation of the land, and the adaptation of certain cereals and seeds suitable to the nature of the soil as well as climate.

We will first allude to the Norfolk course of cropping as it was known upon its first introduction at the end of the eighteenth century, the rotation being (1) fallow for roots to be fed off on the land in part, and part fed off by bullocks at the homestead; (2) Barley or Oats; (3) Clovers alternated; (4) Wheat after one ploughing and manuring with yard dung, the roots being manured entirely with artificial and portable manures. In estimating the advantages of the four-course system, it must be considered when properly conducted as an improving system; for we know that in certain parts of Norfolk, Lincolnshire, and some other counties the land is of a very thin, sandy, and flinty nature, resting upon chalk, and in various districts was originally merely rabbit warrens, or at the best poor sheep walks, or downs as they are sometimes called. By the adoption, however, of the four-course rotation, the roots being consumed by sheep on the land, and in part by bullocks in the boxes, these light and originally worthless tracts

have been raised into valuable farms for the keeping of both sheep and bullocks in the winter months, and the growth of good crops of corn also, especially in those instances after having been clayed or marled. In fact when Barley is grown under the four-course rotation it is nearly sure to produce a good malting sample. Of roots we must state that they are very sure to produce abundantly, except in some severely hot summers, and even then the common varieties of Turnips will produce fair crops if sown late, for the autumn rains upon such soils have a very forcing effect; in fact fine crops of stubble Turnips are often grown after the Rye crop or early white Oats on that part of the root-lain intended for Mangolds in the next season on the root-lain.

After being farmed as nearly as may be possible on the Norfolk rotation, the land will gradually improve in letting value as time goes on if the feeding of sheep and bullocks is carried out with judgment. Now this being the case is the cause of this course being in most cases adopted as the rotation to be carried out in the last two years of a lease, for its simplicity and its easily defined rotation is sure to leave the land in a fair state as regards cropping to be entered upon by an incoming tenant. This latter point is also of some consequence in the event of a home farm being leased or let off to an occupying tenant. So far as the home farmer is concerned in the management of such soils as we have named, the system is adapted to his position, for we have numerous instances in the competition for prizes for the best-managed farms given by the Royal Agricultural Society of England. The Journal of the Society furnishing particulars of their management in several instances, states that the prize farms were conducted upon the four-course or Norfolk rotation of cropping, and at the same time remarking that the stocking with both sheep and bullocks and their feeding also was in accordance with the old Norfolk system, whereby the former consumed the roots on the land, but the latter under cover, and mostly upon the box system, both, however, having liberal allowances of cake and corn in addition to hay and roots; thus exhibiting the force of our previous observation, that when properly carried out the Norfolk system is an improving one, and certainly calculated to add to the letting value.

We are still alluding to light thin soils, and there was originally, and before the four-course came into practice, the five-course prevailed in the north-east part of Norfolk; and we find that Mr. C. S. Read, who is a great authority upon all agricultural matters, but more particularly in the county of Norfolk, states—"In the second year the seeds were broken up in July, and make a bastard fallow for Wheat. One could imagine no worse preparation for Wheat on such lands. The ground could not be consolidated, and every facility was given for the swarms of winter annuals which infest such soils to spring up and smother the plant. The farm manure was wanted for Turnips, and a one-year ley left to its own resources grew but little Wheat." The improved system is to use artificial manures for the root crop, and to apply the farm-yard dung one half to the Clover seeds in winter or early spring, and the other half on the one-year ley, ploughing it once for Wheat; and by using the presser at the same time these light soils become firm, and once ploughing only breeds no weeds. In connection with this practice it should be considered as to the necessity of sowing broadcast after the presser in preference to working the land and drilling, for upon these light soils, which are so apt to shrink after frosty weather throwing the Wheat plant out of the land, it is preferable to sow after the presser, because, not only do the plants retain a better hold upon the soil, but in the event of a dry summer they withstand drought better, the roots being in contact with the moist subsoil.

Although the four-course system originated in the county of Norfolk, it must not be supposed that it is continued as a system adapted for the better and loamy soils, and to illustrate this we

cannot do better than quote from a letter in the Journal of the Royal Agricultural Society for 1859 from Mr. Wm. Cubbit of North Waltham to Mr. J. C. Morton, wherein he states—"The land I occupy is of the finest quality, and I have come to the conclusion that to farm it unusually high, and stick to the usual four-course system, is occasionally attended with great loss and disappointment. My plan of late years has been to pursue no particular course, but to crop close and extend the rotation, as for instance, thus—First, Turnips or Mangold Wurtzel; second, Wheat or Oats; third, Barley; fourth, Clover or other seeds or Beans; fifth, Wheat; which is a kind of five-course shift, care being taken not to lay down more land in seeds than is required for the use of my horses. After Barley, therefore, I usually grow a field or two of Beans, but always grow as large a shift of roots as possible, being generally well paid by the winter grazing of sheep and cattle, and also by the means thus afforded of getting the straw made into good manure."

This Norfolk four-course system is still continued on the strong lands, generally on medium or small-sized holdings, in the county we are told; but it is difficult to see how it can be practically turned to account as a profitable rotation, for the leading point in the system is the growth of one-fourth of the arable land in roots to be fed off by sheep, but this cannot be done on cold strong land in the winter months, or at spring in time for sowing the land with Lent corn. It may, however, be done by the removal of the main crop of roots off the land for bullock-feeding under cover; but this is, if not a departure from Norfolk system, calculated to incur great expenses.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour is now of more importance than in almost any other month of the year, because they will not only be required in such work as is usual during the use of the mowing machine, as well as the reaping and binding machine; for, besides this work, as fast as the corn is cut and tied the land may be ploughed every day between the stooks of corn, such as Rye, especially of that which has now been cut for some little time, and some of it carted. All the early sorts of corn, such as winter Oats, White Victoria Oats, Rye, and Wheat in the early districts of the southern and home counties together with winter Beans and forward Peas, were commenced being cut on the 24th of July, and in all such cases where enough hands were employed, the corn or pulse may have been placed either in stook or in pook, in such a position as to leave two-thirds of the land vacant and ready for ploughing, working down and drilling Turnip seed every evening after four o'clock. In this way we for many years secured fine crops of common Turnips forward enough to be fed by sheep in the month of November following; when, however, in the absence of Turnips being required for use grown in this way there is still a sufficient reason why the land if encumbered with couch, black grass, or other weeds should be scarified and worked with Howard's self-lifting drag harrow, as the cheapest and earliest mode of commencing operations for an autumn fallow. In fact, throughout the harvest we contend that as fast as the crops of corn and pulse are cleared all the horses not required in carting corn should be constantly employed in cleaning the surface of all those fields intended for crops next year where a fallow is necessary. Not only is it necessary to do this work with the horses during the harvest period, but steam power should be employed also in the deeper stirring of the soil, so that the horses may follow after with Howard's excellent implement and complete the work of surface-cleaning. Nor is there any other period of the year when so much can be done with such beneficial effect in a given time as during and just after the harvest, nor is it any use for the home farmer to tell us that his horse power and steam is not equal to do this. We answer that he is not farming on commercial principles, nor has he any reason for complaining of his land being foul if he loses the opportunities we have just described. It is not, however, the only loss which he must expect, for if he neglects the first opportunity it may not and does not occur again in some seasons, and the crops intended to be sown are delayed.

Hand Labour.—It is very rare that farmers commence cutting their crops too soon, and should they do so in some respects, yet in others they have the advantage, for the corn of every kind when cut early if wet weather succeeds takes less injury when cut and set up in stook than it does if it takes bad weather before cutting. If loss occurs it is the worst corn or pulse which is lost, whereas losses occurring before the crops are cut it applies to the best of the grain; the straw too is more valuable as fodder when cut early. It is just the same with Beans or Peas. The haulm is more valuable if cut early, and

the pods are not likely to open and waste the grain if wet weather follows. It is frequently stated that Bean haulm is of little value, but if so it arises from not being cut soon enough. We know from experience that if the eye of the bean is turned black the crop should be cut; the haulm then will if harvested in a proper manner be fit for cutting into chaff and pulping, so as to form part of a valuable food in admixture with roots. It is only in this way that the feeding value as shown by analysis of Bean haulm can be made available as nutritious food, and the calculation of feeding value compared with straw, as shown by Dr. Voelcker, can be obtained. It is now time to consider where the corn ricks are to be placed, and we contend that much time is often wasted by carrying corn to a rick yard, especially when it is intended to sell the straw, for in that case the ricks can be threshed and the straw stacked with as much advantage nearly as though it was corn, because straw is and will be very dear in the future in all districts, but especially near towns and railway stations where carriage is easily obtained.

Live Stock.—We must not forget our sheep stock and our cattle during harvest, nor can the shepherd take part in harvest work if he has a flock of breeding ewes, especially on the large outlying hill farms. To the dairyman on the large dairy farms, the harvesting of corn is nothing; his only care is for the hay, but for this it is seldom that he can find time for assisting at haying time, especially if he has a large herd of cows, but still more so if in addition he has to look to bullocks fattening on the pastures, which should have their cotton cake about 4 lbs. each daily, and if it is given with 2 lbs. of bean meal so much the better, especially if the food is given in mixture with cut Cabbage or Mangolds held over for the purposes. It is essential for every bullock to have its proper share of food, and there is no better plan than having iron skeps, which hold a little over a bushel, each skep receiving the food for one bullock. In this way they can all feed separately without difficulty. Just in the same way yearlings and stores of any age may be fed with advantage without some having the lion's share and others getting little or none of the trough food. With respect to the health of all our live stock, it is often the case that the most in quantity and the best in quality of the grass in the pastures is found in those which lie the lowest and on the sides of brooks and rivulets; this land lies below the level of night fogs. Now as the autumn advances this is an important matter for consideration, as young animals frequently suffer from quarter-ill (especially heifers in fine condition) unless they are removed to higher and drier pastures for night-lying.

POULTRY AND PIGEONS

THE FATTENING OF FOWLS FOR THE TABLE.

OUR subjects are often suggested to us by the inquiries of correspondents. We have this week had a question put to us as to the best kind of fattening coop, which reminds us that fattening is at this time of year an important operation in many poultry yards, and that some notes on the whole subject would not be out of place. We have before now stated that generally speaking we do not think any artificial fattening necessary, that well-kept chickens of good kinds should always be ready to kill, and that we do not ourselves pen up chickens to fatten, though we are often complimented on the figure and flavour of ours on the table. There are, however, exceptions to all rules, and in this case there may be many good reasons for exceptions to our rule—*e.g.*, where circumstances compel young and old fowls to be kept on one run, and that not a very large one, an old cock will so bully cockerels that it is impossible for them to put on any flesh; or in farmyards and other places where there are necessarily impurities about, it is sometimes found that the flesh of chickens which have access to them has a disagreeable flavour. Again, there are some people who think fattened fowls, such as are sold in the London and Parisian markets, alone palatable.

We have written often enough about table poultry to give our readers some idea of the breeds of fowls crossed or pure which are suitable for fattening. It is worse than useless to attempt to improve the condition of narrow, breastless, long-legged mongrels. Such we have often seen imported from ill-managed farmyards into gentlemen's establishments, crowded into a wretched pen in a back yard, fed on oats or other grain—a diet perfectly unfit for a creature which takes no exercise, and then we have heard the family wonder why the chickens are so unpleasant on the table.

1. To begin. A chicken which is to be fattened must have a plump frame and apt to carry fat on the breast, it must also be a perfectly healthy bird; chickens which have only just been kept alive by care are not in a fit state to be fattened. Given a suitable lot of young birds, the methods of fattening them are

two. The first consists in simply restricting their liberty to a certain extent, and giving them food which improves the quality of their flesh; the second in closely confining them, and towards the end of the time cramming them forcibly if needs be. We have occasionally successfully improved chickens by the first method. A number of fine young birds of one age should be selected, put in a clean enclosed grass run, with access to a dust bath to keep their plumage clean, and a heap of gravel to help their digestion. The partial confinement and freedom from old tormentors prevent their running the flesh off their bones, and companionship tempts them to eat well. All the food of fattening fowls should be soft. When first they are put up starve them for twelve hours, and if ever they get dainty and do not seem really eager for their meals repeat the fast. This will not often be necessary, and as long as they are happy and hungry give them as much as they will take three times a day. It is needless to say that their house and run must be kept scrupulously clean; in a confined space any poultry left in dirt and discomfort soon show its ill effects by loss of appetite. Their diet should consist of various meals mixed into the crumbly state we have often described, but with milk instead of water, and rice boiled in milk. The best kinds of meal are barleymeal, Indian meal, and buckwheat meal. The latter is largely used in France, and we believe the delicious flavour of first-rate Parisian chickens is attributable to it. After three weeks of this régime any chickens of good race should be in perfection.

2. For those who wish to attempt more systematic fattening we will describe the method which we believe the best from a common-sense point of view and from observing it in the establishments of our friends, though beyond an occasional experiment, as we have said, we have not found it necessary to put it in practice. The long coops into which we have formerly seen dozens of chickens crammed are nearly exploded; if any exist we beg our readers to burn them—their use is absolute cruelty. The poor stupid birds in them invariably crowd to one end, the strong trample on the weak, and the violent scalp the timid. The existence of a bullied bird for weeks in such a purgatory is horrible to think of. How could it possibly do otherwise than waste away? If chickens are to be put into close confinement to improve their flesh each one must have a separate cell. Some of the ingenious contrivers of poultry appliances sell such pens singly and in rows, both of wood and galvanised zinc. They are, however, very dear, and a few hints may help a clever carpenter to construct some at a much less cost. Each pen should be about 1 foot wide, 1½ foot deep, and 2 feet high. They should be closed above, at the back and sides, and be barred in front and at the bottom. Some bars in front should push up to form a door, and a sliding tray should run under the barred bottom. It should be covered with dry earth for deodorising purposes, and cleaned daily. Of course, if a row of such pens are constructed together one long drawer will suffice for many. Two little earthenware pans should be placed on ledges in front of each pen, the one for water, the other for food. These are far better than wooden troughs, inasmuch as they can be frequently put into hot water. Milk much improves the flavour of chickens, and every vessel into which milk is placed requires scalding. The system of feeding should be the same as that for chickens in a semi state of confinement, save that their progress is advanced by keeping them in the dark while digesting each meal. Towards the end of the time cramming may be resorted to if the more natural method is not found sufficient. This, however, requires much care and practice, and we are strongly averse to it ourselves. For those who are inclined to try it we will in another article translate some passages from a French authority on the subject.—C.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Charing Cross Hotel on Friday, the 4th inst., at 2 P.M. There were present Messrs. R. A. Boissier (in the chair), T. W. Anns, and S. Lucas.

A communication from the Secretary of Nottingham Show, as to holding the same under Club rules, was read, and a subscription of two guineas was granted in aid of the funds of the Show.

The date of the next meeting was fixed to be held on the first or second days of the Dairy Show, the exact time and place of meeting to be fixed by the Secretary, who was also empowered to summon a special meeting in the meantime should he think it desirable.—ALEX. COMYNS, *Hon. Sec.*, 47, Chancery Lane, W.C., August 8th, 1882.

THE WARWICK SHOW FRAUD.

JAMES WYNN *alias* GROUTAGE, thirty-six, described as a clerk, and William Cockerill, thirty-three, oil merchant, were on Saturday last

put on their trial at Warwick Assizes before Mr. Justice Grove for obtaining money by false pretences, and for conspiracy to obtain the same. The circumstances of the case, to which we shortly referred at the time it occurred, were as follows:—Groutage, the principal offender, in the month of April last advertised and issued schedules of prizes for a show of poultry, Pigeons, and dogs to be held at Warwick on the 10th and 11th May. The prizes offered were liberal, there being for poultry sixty-two classes, with £2, 15s., 10s., and 5s. prize money in each class, besides a few cups. Pigeons were to have thirty classes, and dogs forty-seven. We have not the Wolverhampton schedule by us, but speaking from memory we should say that with the necessary alteration of dates, Judges, Committee, &c., the whole schedule was taken bodily from an old schedule of Wolverhampton Show. Groutage announced himself as Secretary under the pseudonym of James Wynn, and took for address that of his brother-in-law the prisoner Cockerill. The Show was announced to be held under Poultry Club and Kennel Club rules, and the Corn Exchange was named as the site. A Committee of eight completed the schedule. Unfortunately for Mr. Groutage several of the Warwick police are fanciers, and among these Sergeant Hall and one or two others were inclined to exhibit at the Show. As a preliminary, however, the sergeant made a few inquiries, and the result of these was that he took up the matter in his capacity of police officer instead of as a fancier. The result of his investigations was that Groutage and Cockerill were arrested just as the former had completed his arrangements for emigrating with his family, and the sum of £200 obtained for entry fees. It appeared from the evidence given on Saturday that the prisoner Groutage had made no arrangement with the authorities of the Corn Exchange as to holding the Show there, that he had not communicated with the Poultry Club or Kennel Club as to holding the Show under their rules; that entry fees to the amount of over £200 in cheques and post office orders had been received, and that Cockerill having a banking account had changed the most of the cheques and post-office orders into cash. Evidence was also adduced that before the entries closed Groutage was in communication with Messrs. Allan Brothers, Liverpool, as to securing passages for himself and family to Canada on the 11th May. The trial occupied the entire day on Saturday, and the Jury returned a verdict of guilty of both charges in the case of Groutage, and of guilty of conspiracy only in the case of Cockerill. The latter prisoner was strongly recommended to mercy. Sentence was deferred. We may mention that through the action of Sergeant Hall in sending timely notice to all exhibitors only one or two exhibits were actually sent to Warwick for the Show. It has been suggested that the services rendered by the Sergeant throughout the case are worthy of recognition, and we entirely concur in this view. He has rendered a great service to exhibitors by bringing these defaulters to justice.—A. C.

OUR LETTER BOX.

Fowl Coops (G. S.).—We believe that coops for fattening fowls are supplied by Christy & Co., incubator manufacturers, 155, Fenchurch Street, London, E.C., also by Reynolds, manufacturer of various poultry appliances, Compton Street, Soho. The article on fattening fowls on page 141 is a general answer to your question.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. July. August.	Barometer at 32a and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun. 30	Inches. 30.111	deg. 66.2	deg. 60.3	N.W.	deg. 60.4	deg. 77.8	deg. 53.9	deg. 122.3	deg. 50.9	In.	
Mon. 31	30.322	61.7	53.8	N.	61.1	73.8	49.3	125.8	45.2	—	
Tues. 1	30.195	65.5	61.3	W.	62.3	77.1	58.7	109.8	57.9	—	
Wed. 2	30.085	70.7	63.0	S.W.	62.7	79.2	57.8	127.7	56.6	0.033	
Thurs. 3	30.187	58.3	52.8	N.W.	62.3	69.5	49.5	126.8	50.2	—	
Friday 4	30.295	58.7	52.5	N.W.	61.2	71.0	48.8	125.2	48.8	—	
Satur. 5	30.241	64.3	58.4	N.W.	61.9	73.1	53.0	116.3	48.2	—	
	30.205	63.6	57.4		61.7	74.5	53.0	122.0	51.1	0.033	

REMARKS.

30th.—Fine, bright, and warm; evening cloudy; slight shower 9.15 P.M.

31st.—Morning very bright and warm; overcast in afternoon; sprinkle of rain 8 P.M.

1st.—Fair but cloudy; very bright sunset.

2nd.—Bright warm morning, much wind and dust; afternoon cloudy, rain between 4 and 5 P.M.; fine evening.

3rd.—Fine, much cloud, and cooler.

4th.—Fine and bright.

5th.—Cloudy and not much sunshine; finer in evening.

A much finer week, temperature slightly above the average, and scarcely any rain.—G. J. SYMONS.



17th	TH	Maidenhead and Basingstoke Shows.
18th	F	
19th	S	
20th	SUN	11TH SUNDAY AFTER TRINITY.
21st	M	
22nd	TU	Royal Horticultural Society, Fruit and Floral Committees at
23rd	W	Burton-on-Trent Show. [11 A.M.]

TUBEROUS BEGONIAS.

THE improvement of plants during the past half century has very deservedly received much attention from horticulturists, and the grand advances that have been made in many genera afford abundant evidence of the success which has attended well-directed efforts. Careful cultivation, judicious crossing, and thoughtful persevering selection have yielded most satisfactory results, the number of usefully ornamental plants being largely increased and their beauty greatly diversified. Many instances of this could be given, but a few will suffice, one of the most striking, perhaps, being the Clematises, the progress of which was noted a short time since in these pages. Pelargoniums, especially the decorative and Zonal sections, have also advanced greatly; while amongst fine-foliage plants may be instanced the Dracenas, Crotons, and Coleuses, all of which have progressed considerably in recent years. There is, however, another genus of flowering plants—the Begonia, that has profitably employed the attention of hybridisers; but it is in one section alone—namely, that including the Tuberous species and varieties, that the most astonishing results have been obtained, and to a consideration of the means by which such success has been achieved the following notes are devoted.

All who have visited the Royal Horticultural Society's Gardens at Chiswick during the past and present months have been greatly attracted by the display of Tuberous Begonias there provided, which well illustrate the excellence that has been attained with these plants. Visitors to Messrs. J. Laing and Co.'s nurseries at Forest Hill have been similarly surprised, not only at the brilliancy of the colours and the abundance of flowers, but also at the great size of the individual blooms, the breadth of the petals, and the symmetrical form which distinguish so many handsome varieties. Contrasting these with the narrow-petalled earlier forms shows at a glance the progress that has been made, and reminds us forcibly of the similar difference between the early Zonal and bedding Pelargoniums and those finely formed varieties at present in cultivation. Attention has further been paid to the habit of these Begonias, and there are now two well-marked groups—namely, those of erect growth and those with slightly drooping stems, though gradations may be found between the extremes. The first-named may be again subdivided, according to the height of the plants, into tall, medium, and dwarf varieties, all having their particular advantages and uses. Some advance has also been made in obtaining a race with ornamental foliage, though at present this is chiefly confined to the Pearcei type with yellow or buff flowers, yet greater success is confidently ex-

pected, and will doubtlessly be attained. Hundreds of varieties, all more or less distinct and beautiful, have received names and been sent out by nurserymen; but it is now found that seed saved from a good strain yields so many excellent varieties that some firms have discontinued naming these plants, their efforts being directed to rendering the strain generally as meritorious as possible. So that now the purchaser of a packet of seed can rely upon obtaining varieties quite equal to some of the best named forms, and there is the possibility even that something superior may be secured. At the Forest Hill nurseries many thousands of seedlings are raised every year, and these are planted out in prepared beds for trial, all that are really worthless being discarded. In the autumn the young plants are lifted, the small tubers being dried and sold like other tuberous or bulbous plants. A great demand exists for these, as they come within the means of many who cannot afford the higher-priced novelties.

Having considered the present characteristics of Tuberous Begonias, it may be well to briefly allude to the means by which so high a degree of merit has been attained, and the original forms that have been employed by hybridisers in producing such satisfactory results. Although the varieties and hybrids are so numerous, the species that have contributed to their formation are comparatively few, and, moreover, are nearly all of recent introduction. The lofty Andes of South America is the chief home of these Begonias, distinguished by possessing a tuberous rootstock and herbaceous fleshy stems; but one of the latest introduced, *B. socotrana*, which also shares these characters to some extent, is, however, as the specific name signifies, a native of Socotra. Though this will doubtless play an important part in future attempts to improve or vary the Tuberous Begonias, it has at present been in this country too short a time (about two years) for any results to have been obtained in that direction. The other species—namely, *B. octopetala*, *B. boliviensis*, *B. Veitchii*, *B. Pearcei*, *B. rosæflora*, *B. Clarkei*, *B. geraniifolia*, *B. Davisii*, *B. Frœbelii*, and *B. cinnabarina*, are found on the Andes of Peru, Ecuador, or Bolivia at high elevations, frequently up to 10,000 feet above sea level. The oldest of these is the greenish white-flowered species *B. octopetala*, which appears to have been introduced from Peru about 1835, but was subsequently lost and reintroduced by M. Roezl. This is chiefly interesting as one of the oldest of the section, for it has not been of great service to hybridisers. Next in order of introduction is another rather unimportant species, *B. cinnabarina*, a native of Bolivia, with vermilion flowers, which made its appearance about ten years later than the preceding. *B. boliviensis* is well known, and has been largely employed in crossing with other forms. It is a Bolivian species, and was originally found by Mr. Weddell, but not introduced until some years after—namely about 1857.

B. Pearcei, a comparatively dwarf form with large yellow flowers, dark green velvety leaves, veined with a lighter hue, and reddish on the under surface, is also a Bolivian species, for which English cultivators are indebted to Messrs. J. Veitch and Sons of Chelsea, by whom it was sent out seventeen years ago. It was found by the traveller Mr. Pearce, whose name it bears. Most of the yellow-flowered varieties owe their origin to this species. *B. Veitchii*, also a dwarf form, has bright scarlet flowers, which are produced freely, and it has been very useful in giving rise to a race of dwarf but vigorous

habit. The petals are rounded, imparting a symmetrical appearance to the blooms; the leaves are bright green, broad, and rounded in outline. This was found in Cuzco, Peru, at the great elevation of 12,000 feet, whence it was introduced by Messrs. Veitch about 1867. Two other pretty species allied to the preceding, and resembling it in habit and form of flowers, are *B. Clarkei* and *B. rosæflora*, both from Peru; but the *B. Clarkei* inhabits rather warmer regions than *B. Veitchii*, though *B. rosæflora* is found at a similar altitude. The last-named has large rounded flowers of a fine clear rose colour, and its parentage may be traced in many of the varieties that are now grown with flowers of a like tint. *B. Clarkei*, which is named in honour of Colonel Clarke, who first brought it into general notice, has large scarlet flowers, but not quite so brilliant as *B. Veitchii*. Both these appeared in England about the same time—namely in 1866 or 1867. Later still—namely from 1874 to 1876, *B. Frœbeli* and *B. Davisii* were added to the list of species in this section, and both have contributed to some extent to the improvement of varieties and hybrids. *B. Frœbeli* is of compact habit and somewhat related to *B. einnabarina*, having scarlet flowers freely produced. It was introduced by M. Frœbel & Co. of Zurich from Ecuador. *B. Davisii* is a charming dwarf species, having neat light green leaves, red on the under surface, and rich scarlet flowers of moderate size, but good form and extremely abundant. Small plants of this are highly ornamental for cultivation in pots, and the fine double form obtained a short time since is also a most valuable plant.

The intercrossing of these species and careful selection from the numerous seedlings raised have produced with surprising rapidity the handsome race of plants which are now becoming such general favourites for decorative purposes either in pots, baskets, or for bedding-out, and their popularity is still increasing. Selections of varieties have been frequently given in these pages, and it is not necessary to repeat these now, but a glance may be given to the earliest of the hybrids obtained, though it would be almost impossible to trace the parentage of all those cultivated at present. One of the first hybrids secured and certainly the best was *B. Sedeni*, which was obtained at Messrs. Veitch's Chelsea nursery by Mr. Seden as the result of a cross between *B. boliviensis* and an unnamed species. This was subsequently employed as a parent with *B. boliviensis*, *B. Veitchii*, *B. Clarkei*, and *B. Pearcei*, giving rise to *B. Chelsoni*, *B. Stella*, *B. Vesuvius*, *B. Model*, and *B. Chambersii* respectively, the last two resulting from two crosses with *B. Pearcei*, all improvements of more or less value. *B. Veitchii* crossed with *B. boliviensis* resulted in the production of *B. Chelsoni*, and this with *B. Sedeni* produced the variety *Aeme*. Thus the first hybrids raised have been repeatedly utilised by intercrossing with each other, the diversity and excellence of the progeny being steadily and satisfactorily increased. Much is due to Messrs. Veitch's initiatory efforts, but other workers in the same field have also produced very creditable results both in England and on the continent. Messrs. J. Laing & Co. have already been mentioned as having contributed large numbers of handsome single and double varieties to the list of cultivated forms, and M. Lemoine also deserves a word of praise for the many beautiful forms he has raised. In the last year or two the double varieties have received much attention, and some of considerable excellence have been obtained, but the majority are inferior in an ornamental point of view to the leading single varieties.—L. CASTLE.

THE CHOICE OF SEEDS—SELECTION OF PEAS.

THE plan which most of our nurserymen now adopt of offering at a cheaper rate a large assortment of seeds selected by themselves has involved me this year in some difficulty. For some time past I had purchased a two-guinea selection of one of the great advertising houses, and need scarcely say that the seeds were good. I found, however, that in this way I became a mere creature of the firm from which I had purchased, and if I was asked the name of a special Pea, Lettuce, or any other vegetable I could only give the title of the firm, prefixed, as seems now the general rule. On selecting for myself this year my bill exceeded four guineas, chiefly because more seeds were sent in each packet than were required. What is my remedy? Should I order by the ounce, or what should I do? Perhaps you will tell me that I

must pay for exercising my right of private judgment, but the difference in the cost seems to me excessive. Another year I hope to induce my gardeners not to sow so thickly, but on this point it is almost useless to contend with them, particularly as they do not pay the bill.

Some of your correspondents who are learned in Peas may like to criticise the list I enclose, and if so I shall be obliged. I have tried the following:—Sangster's No. 1, Ringleader, William I., G. F. Wilson, Hundredfold, Dr. Maclean, Laxton's Fillbasket, Veitch's Perfection, and Ne Plus Ultra. My early Peas were a great success, but I complain of Hundredfold that the quality is not equal to that of many others. As a boy I was accustomed to what were called Marrowfats after the early Peas were over, and expect my gardeners now to provide Peas of first-rate quality, otherwise I may just as well do without a garden. What these Marrowfats were I cannot explain, but possibly some of your readers can, as I believe the name was a common one; their quality at any rate was excellent. The list above is probably too varied, and certainly can be improved, particularly in point of quality.—E. BARTRUM, *Berkhampstead, Herts.*

HARDY AND OUTDOOR FLOWERS—SELECTION NECESSARY TO SUCCESS.

IT is common to hear hardy flowers, especially strong herbaceous growers, described as weedy, fugacious, and mere rubbish. I fear there has been an excuse for this the present season with two months of almost continual showers. I have on several occasions advocated the extended culture of hardy flowers, but without prejudice to the ordinary summer bedders, carpet-bedding and foliage plants included. Tastes are so different. Situations are often suitable for one class of plants that will not do well for others; and lastly, even with comparatively unlimited command of money many gardeners and amateurs cannot get what they would prefer. Reasons like those might be multiplied why no hard-and-fast line can be drawn. Then, again, most people have beds and borders where no one would think of making a carpet bed or putting their choice tricolor Pelargoniums or their Tuberous Begonias, which are even more adaptable. No; the back beds and borders, especially if shaded, answer admirably for tall plants, and the shade in summer is just what suits Polyanthuses, Auriculas, Pansies, &c.; and if a wall is convenient, to which Hollyhocks, tall Phloxes, Lychnises, Helianthemums, Asters, Campanulas, Aconitums, Delphiniums, Aquilegias, Rockets, Pæonies, and Lilies can be easily secured, then those plants are just where they ought to be. In central beds, open, and under the full influence of the sunshine, those and dozens of others not so generally known would be out of place.

I have twenty beds and some borders that I try to have showy and gay for about ten months out of every twelve with all I am able to procure of those flowers. From those I can cut a bouquet for any visitor or to send to a sick person almost any day in the year. Now this is the grand line of demarcation between those who confine themselves to bedding and carpet plants and those who grow hardy and herbaceous plants. What can equal for brilliancy, colouring, and sweetness a bouquet of the queen of flowers (the Rose) alone or when taken in variety? For showiness and sweetness combined in spring you can make a selection from Hyacinths, Auriculas, Pansies, Tulips, the Anemones, Narcissuses, Irises, Polyanthuses, and others equally well known. The varieties of any one of those would make a varied bouquet. Later in the season and during the summer months, as already mentioned, pre-eminently stands the Rose; and if you want white for variety I should recommend *Achillea Ptarmica*, *Campanula persicifolia alba* (I do not mean what is commonly sold under that name, but the variety perfectly double and as full as a white Camellia, 1½ inch across the flowers on the spike), and *Matricaria inodora*, all three very double, blooming a long time, and exceedingly useful for cutting. The last has been blooming the past two weeks, and will continue into autumn. I should select other colours in the same way, and manage so as to have them come in succession. Granted that some perennial Lupins, Potentillas, Geums, and Scabious, especially singles, as illustrations of common perennials, are not worth the space they occupy; but selected double varieties, especially of the three last, have been blooming six weeks, and will continue yet some time.

But let me look at other beds, and consider how they promise now, always keeping in mind how small and limited my collection is, and I see opening the first blooms of Kelway's Gladioli considerably behind in another bed being two dozen others French-raised. I do not remember a better season for this favourite flower. I cannot complain so far of losses, as I only notice a few withered out of two hundred, while Sir Stafford Northcote and

Vicomtesse Glentworth are the only two certificated seedlings that are not likely to bloom. One of the showiest beds I have comprises some of the hardier tall-growing Fuchsias, such as Lye's, obtained from Mr. Cannell, Swanley Nurseries, two years since, and left out last year. Not one was lost by cold. I should have previously mentioned two of my favourites, to which I have devoted considerable space—Pyrethrums and Dahlias. Except for variety I am not sufficiently æsthetic to prefer single to double Pyrethrums. Once grown I cannot imagine any flower lover to be without the latter. I have a selection of show, fancy, single, bouquet, and the better kinds of double Dahlias, for the next three months I expect much satisfaction from seventy varieties of these. Next comes a whole bed of the white Japan Anemone—I say a "whole" bed, and this is the best way of growing it. It will "kill" any edging or other flower; but who that knows it but will say it deserves every space and attention? The first bloom opened recently; the last will come next November. I do not eschew zonals, for one of my most interesting beds is fifty seedlings, seemingly all different. Passing over others, lastly come three beds of my especial favourites, Tuberous Begonias in variety. Briefly I may say I grow them much as I would Potatoes, and they need very little more care in winter, except that in future for bedding I intend to start them earlier in a mild hotbed in February to have blooms in May. When I with limited means, limited facilities, and multifarious other duties to attend to can have flowers in this way for such a large portion of the year, what excuse is there for others to complain of growing weeds or rubbish who have no such difficulties?—W. J. M., *Clonmel*.

THE BOG GARDEN.

A WELL-MADE bog garden is an inseparable adjunct to the rock garden; no well-arranged garden where hardy plants are made a speciality should be without one. Where natural conditions do not admit, some special arrangements should be made. It too often has been my experience to see moisture-loving plants grown indiscriminately amongst alpenes; no worse mistake can be made, for some of the best plants are thus never seen to advantage. It is unadvisable to be hasty in discarding plants until given a thorough trial and their right place be found, except in cases where they are really worthless. I have seen such plants as *Cardamine trifoliata* grown amongst alpenes generally, but never so luxuriantly as in the more elevated parts of the bog, where, though not saturated, there is always an understratum of moisture. *Astrantias*, which seldom give satisfaction in the ordinary border under conditions such as those just mentioned, will be seen in their true character and be more acceptable. Some of the miniature Daisies (*Belliums*) planted amongst other alpenes dry up, so to speak, on the first short season of drought. They are generally looked upon as biennials, but in the drier parts of the bog become perennial. *Bryanthus erectus* and *Epigæa repens*, two of the best American under-shrubs, never do well planted amongst ordinary alpenes. Special preparation may be made for them, giving peaty soil; but that will not furnish them with the indispensable understratum of moisture. Some of the moisture-loving *Saxifragas*—*S. Fortunei*, *S. repanda*, *S. Hirculus*—and a great many more could be mentioned to show the necessity of making special provision for moisture-loving plants.

It has already been said the alpine and bog garden are inseparable, and they are better made together and planned to harmonise. If, however, as is very often the case, an alpine garden already exists, whatever be its qualities or defects, it must be taken into consideration—its contour studied. Simplicity is the order, and let nothing elaborate be attempted.

A bog garden may consist of a small irregular bed at the base of the alpine garden, or a more extensive one at a lower end in connection with a pond or miniature lake. In the latter case it should be irregular and have an undulating surface. If a natural stream of water can be turned so as to take a winding course, so much the better. I have, as I write, in my memory a piece of water for genuine aquatics and a bog in connection, through which a natural stream runs. It is an interesting corner, and a place to which I direct my steps almost daily to watch the progress of or attend in some way to the plants there growing. It matters little what the subsoil consists of in places where plenty of water is at hand. I have made bog gardens on a most retentive clay and also upon gravel, and have always found the desired condition as to moisture can be obtained with a little manipulation. In the case of a deficiency of water a clayey subsoil would be essential, and if a bog garden consists of a small irregular bed some artificial means ought to be adopted for flooding it in dry weather. I have seen this done by a small leaden pipe carried underground. By elevating the surface in places you are enabled

to grow a greater variety of plants. A slope from comparatively dry ground, say where that part of the rock garden terminates on the general level to a basin-like hollow irregular in shape, if the subsoil be retentive, you can here grow swamp plants, such as *Menyanthes trifoliata*, *Comarum palustre*, *Hottonia palustris*, and many others. I have seen handsome specimens of *Primula japonica* growing in such places, also *Helonias bullata* and *Pinguicula grandiflora*. By adopting an irregular curve and a slope you will be enabled to find all conditions of moisture and even partial shade.—M. J.

EUTOCA VISCIDA.

SEVERAL of those attractive little hardy allies of the *Nemophilas*, the *Eutocas*, are grown in gardens, the best being *E. viscida*, *E. Franklini*, and *E. multiflora*, hardy North American annuals. All these are pretty, but being of dwarf growth they



Fig. 25.—*Eutoca viscida*.

are chiefly adapted for small beds or near the margins of borders, as otherwise they appear to little advantage crowded with the taller stronger-growing perennials. They are not particular as to soil, any moderately light ordinary garden soil suiting them, and perhaps the best way to obtain them in good condition is to sow the seeds in the borders in autumn. Some may also be sown in early spring, however, and the plants so obtained will form a succession to the others.

The species represented in the woodcut (fig. 25)—*E. viscida*—is one of the prettiest and best known. The flowers have very deep rich blue five-lobed corollas, with a circular red blotch in the centre, and they are borne in curved racemes, several blooms being open at one time. The leaves are somewhat heart-shaped, but irregularly cut at the margin, and the surface of the plant

generally is covered with hairs, the points of which each bear a viscid secretion, and to this character it owes its specific name. The bright blue tint is very pleasing, and the flowers moreover last a considerable time if cut with a good length of stem and placed in water, thus rendering them valuable for vases. It was found by Mr. Douglas in California, and from the seeds he sent to the London Horticultural Society plants were raised, which first flowered in the summer of 1835.

Eutoca multiflora is also a charming species, with very abundant rosy purple flowers and pinnatifid leaves. Like the preceding this was introduced by Mr. Douglas, who found it growing in sandy places in North America. E. Franklini has small light blue flowers in short close racemes. The leaves are pinnatifid, with more divisions than the preceding, and it was first found by Dr. Richardson on the banks of the Mississippi. E. Wrangeliana has entire ovate leaves, very large purplish-blue flowers, and is one of the most handsome species in the genus. It was discovered in the Russian colony of Ross, New California, and seeds were first sent to St. Petersburg.

NATIONAL GOOSEBERRY SHOW.

THIS was held in the Royal Botanical Gardens, Old Trafford, Manchester, on the 7th inst. The respective prizewinners with the names and weights of the varieties are as follow:—

			dwts.	grs.
John Boot	Premier prize red	Seedling Jumbo	29	4
John Torkington ..	" " yellow	High Sheriff ..	27	0
George Beckett	" " green	British Oak	28	4
Benjamin Cheadle...	" " white	Antagonist	27	10
Edmund Salsbury ...	Red Stewards' Prize	Lord Derby	27	18
James Carter	Yellow " "	Leveller	25	18
James Bower	Green " "	Shiner	26	16
James Warburton ...	White " "	Transparent ..	26	11
James Salsbury	Red " "	Bobby	25	14
Daniel Bower	Yellow " "	Thatcher	23	17
James C. Minshall...	Green " "	Stockwell	25	0
William Heath	White " "	Faithful	25	10
Hamlet Foden	Red " "	Talfourd	25	2
Charles Leicester ...	Yellow " "	Seedling Share All	23	6
Alfred Tomkinson ...	Green " "	Plunder	24	3
William Harper	White " "	Succeed	24	10
Bradley Bradley	Red " "	Blucher	23	10
Faithful Jameson ...	Yellow " "	Drill	22	22
John Fisher	Green " "	Matchless	23	12
Charles Buckley	White " "	Hero of the Nile	21	17

RED CLASS.

John Boot	Lord Derby	28	0
John Torkington	Bobby	27	17
Edmund Salsbury	Macaroni	26	6
George Beckett	London	25	19
John Boot	Seedling Collis Lane...	25	18
James Warburton	Blucher	25	5
George Beckett	Ploughboy	24	18
B. Cheadle	Eskender Bey	24	10
Edmund Salsbury	Clayton	25	2
Faithful Jameson	Talfourd	23	14
Charles Leicester	Rover	23	12
William Heath	Governor	22	10

YELLOW CLASS.

John Torkington	Leveller	26	16
Edmund Salsbury	Oldham	26	12
William Heath	High Sheriff	26	8
Benjamin Cheadle	Lady Houghton	26	4
Benjamin Cheadle	Australia	25	2
Edward Salsbury	Ringer	24	4
Faithful Jameson	Drill	23	0
John Boot	Mount Pleasant	23	2
James Warburton	Pretender	22	17
Charles Leicester	Thatcher	23	2
Charles Leicester	Bagslate Hero	23	0
James Warburton	Catherina	22	3

GREEN CLASS.

John Boot	Plunder	27	7
George Beckett	Surprise	26	19
George Beckett	British Oak	26	18
James Salsbury	Hospool	26	4
Daniel Bower	Stockwell	26	0
Faithful Jameson	My Beauty	24	2
John Fisher	Shiner	23	4
John Boot	Telegraph	22	0
Faithful Jameson	Diadem	21	21
Hamlet Foden	Matchless	21	14
Daniel Bower	Souter Johnny	21	13
Charles Leicester	Seedling Sir Warren...	21	7

WHITE CLASS.

		dwts.	grs.
George Beckett	Transparent	27	6
Daniel Bower	Antagonist	27	0
George Beckett	Succeed	26	14
John Boot	Faithful	25	0
John Boot	Princess Royal	24	10
James Warburton	Careless	24	6
John Torkington	Fascination	22	22
Faithful Jameson	Apology	21	11
Hamlet Foden	Overseer	20	16
John Torkington	Peto	20	8
John Fisher	Alice	20	6
Faithful Jameson	Freedom	19	20

TWINS, TWO ON ONE STEM.

Daniel Bower	Red	Clayton	43	21
James Warburton	Yellow	Leveller	41	13
James Bower	Green	Stockwell	36	15
Faithful Jameson	White	Fascination	36	15

PLATE OF TWELVE BERRIES.

RED.

J. Boot	Lord Derby
George Beckett	Lord Derby
Charles Leicester	Seedling Negro
Daniel Bower	Seedling
James Threlfall	Lord Derby

YELLOW.

John Boot	Leveller
James Bower	Leveller
Daniel Bower	Ringer
James Threlfall	Ringer
Faithful Jameson	Drill

GREEN.

John Boot	Plunder
Daniel Bower	Stockwell
Faithful Jameson	Telegraph
Charles Leicester	British Oak
James Bower	Shiner

WHITE.

James Warburton	Transparent
George Beckett	Transparent
Daniel Bower	Antagonist
John Boot	Transparent
Faithful Jameson	Transparent

Mr. James Threlfall, Greenhale, is the Chairman, and Mr. Charles Leicester, nurseryman, Macclesfield, is the Secretary of the Society.

TWO GOOD BRITISH PLANTS.

AMONG the great number of British and exotic plants grown by an enthusiastic and experienced botanist and cultivator, Dr. Marsh, Egford, near Frome, there are two which are strikingly superior—viz., a Corn Marigold and a Scolopendrium. The former (*Chrysanthemum segetum*) was selected during one of the Doctor's botanical rambles, and as now grown by him quite surpasses all the Marguerites. The seed, I am informed, will not germinate in heat, but does so readily in the open ground, and rapidly grows to about 2 feet in height. The blooms are freely produced, from 2 to 3 inches in diameter, and in colour are rich yellow. They are much admired by the ladies, and the flowers last well when placed in water, some having been kept in cool weather upwards of a month.

The Scolopendrium alluded to, a remarkably broad wavy-leaved variety, was also discovered by Dr. Marsh and is named Marshii. I have frequently heard of this form, and am pleased to say rumour for once did not exaggerate its beauty. Several fine crested Scolopendriums are also grown, but these are more noteworthy as being curiosities, while Marshii must be classed as a really ornamental Fern.—W. I.

A COLOSSAL FERN.—Recently a huge Fern, *Todea barbarea*, writes Baron Von Mueller, was brought away from its seclusion in the Dandenong Ranges, near Port Philip. "After the removal of its hundreds of fronds, the stump-like trunk weighed 2900 lbs. It required to be dragged by a train of oxen out of its recess, where it may have grown for more than a century to accumulate the substance of its massive stem. The monster Fern is to be placed in the conservatory of Melbourne, where the mycologist, Rev. Heinrich Tode, so long laboured for the Church and for science also, and where his mortal remains are buried. A brisk trade in large Todeas

ought to arise, as the marvellous specimen at Kew must have attracted the attention of professional and amateur horticulturists for many years after its removal thence from the Melbourne Botanic Garden. Giant *Todeas* may be obtained from South Australia (Mount Lofly Ranges), various places in Victoria, Tasmania, New South Wales, and Queensland, but specimens weighing over half a ton (without fronds) are rare. This colossal Fern has also the recommendation of bearing a considerable amount of frost, so that in temperatures like that of Arran it could be grown in the open air. In South Africa it seems never to attain to the enormous weight of extra large Australian specimens."—(*American Gardeners' Monthly*.)

AN HOUR AT THE PRESCOT NURSERIES.

CUCUMBER-GROWING.

IT is not my intention to attempt any description of this establishment that has been referred to again and again in the pages of the Journal, but to point out some of the cultural details in Cucumber-growing and the production of plants for market without ventilation.

Gardeners visiting the neighbourhood of Liverpool should not fail to inspect this establishment during the Cucumber season, for many useful and profitable lessons may be learned. I have before stated the "express" system, as it has been termed, is practised, not in one or two houses, but in thirty or more, varying from 50 to nearly 200 yards in length. When I alluded to this establishment on page 357 last volume I estimated the weight of fruits cut at about 3 tons per week, but should have been nearer right if I had written 5 tons. I also asked if it were possible for the plants under this heavy cropping and non-ventilating system to last as long as those more judiciously cropped and brought forward more slowly. I am now convinced they last equally as long, and will produce a greater weight of fruit. For instance, plants from which Mr. Whittaker commenced cutting during the month of November were only pulled out at the end of May. At that time several dozens of saleable fruit were hanging. These plants had been in bearing for at least seven months, and could not have been expected to last much longer under the system generally practised. There need remain no doubt about the crop being heavy, or the plants would have been removed long before. I do not doubt if Mr. Whittaker had removed all the fruits and cut back the plants they would soon have pushed growth and continued fruiting for a long time, but preference was given to clearing out the whole and starting again with young plants.

It is generally believed that small houses are the best for the earliest crop, and frequently such are built or used for the purpose in private gardens. We have seen this recommended repeatedly. Mr. Whittaker has, however, found from experience that this is really a delusion, and that he can cut fruit in his large house (nearly 200 yards in length) earlier from plants placed out in February than in any house he has of a smaller size. During the past two years the plants in his large house and a number of smaller ones were all raised from the same batch of seed to test this point. The plants in the large house have produced fruits for cutting before those in the smaller houses, which from all appearance are equally as suitable as far as heat and position are concerned. The idea that small houses can be kept warmer than those of a larger size has long since been abandoned by many practical men. Small houses are more variable in temperature, while those of a larger size are more uniform and a certain temperature is more readily maintained. Regularity is a great point to be aimed at, not only in producing early Cucumbers, but plants as well as early fruits.

How frequently do we see advised that syringing is to be done early in the afternoon for the foliage to be dry before night. However beneficial this may be to plants and fruit trees generally grown inside, it should not apply to Cucumbers. Those who recommend it, if they saw the 2-inch hose with a large rose secured to the end at the Prescott Nurseries playing amongst the Cucumbers and thoroughly saturating the house after eight o'clock P.M. would at once abandon the practice of early syringing. The hose to which I allude is worked by two men. One directs the nozzle, giving the whole house and soil in which the Cucumbers are growing a thorough drenching, while the other supplies the water by means of a patent hydraulic pump from wells sunk into the earth and at certain distances along the centre path. Wells of this description rudely constructed are in all the houses. The ordinary syringe is not in use in this establishment; it was found much too laborious an operation, besides the instrument being continually out of order. In my previous article I omitted to say a little shade is used on the west side of the houses.

To achieve real success the principal object appears to be in the selection of a suitable variety when grown under the

"express" system. The majority of kinds are worthless; on some the fruits are inclined to damp in their early stages, others are not free enough, while other varieties produce too long necks, and so on. This year there is a house full of a Cucumber grown well by Mr. Harrison, Knowsley Gardens; it fruits abundantly under this close system, but is not so good for the market as Mr. Whittaker's variety.

PLANTS GROWING WITHOUT VENTILATION.

Although Cucumbers are so largely grown in this establishment, attention is paid to the production of plants in large numbers and cut flowers for the market. The plants generally occupy the houses during the winter and spring months before the Cucumbers are planted; in fact large quantities are grown under the Cucumbers until they shade the roof of the house too much. The above heading may startle some cultivators, who attach so much importance to the admission of air to their plants grown under glass. It is generally believed that ventilation is of vital importance to the production of a sturdy compact growth; but it is nevertheless a fact that thousands are produced in this establishment without any ventilation except what is provided by the spaces between the panes of glass and when the doors are opened. There are no ventilators, and the doors are only opened when passing in or out. The plants subject to this close confinement are generally those to which the majority of us give abundance of air to keep them dwarf and compact. But I can assure all who read this that the plants grown on the non-ventilating system are sturdy and compact, in fact equal in appearance to any treated in the ordinary way. Harrison's new Musk is grown early in the season by tens of thousands, and has a ready sale in the market. These are all grown in the Cucumber houses in 5-inch pots. Of Zonal Pelargoniums, *Vesuvius* and *Wonderful* are most largely represented, and these are produced for market in enormous quantities. *Happy Thought* is also grown in quantity, and is sturdy and luxuriant. A large number of both single and double Pelargoniums are included, but those mentioned appear general favourites. The doubles at the time of my visit occupied a large cool house. These doubles are principally for supplying cut flowers. Fuchsias, *Coleuses*, and other plants are grown under exactly the same close conditions. In one house I noticed a number of healthy *Eucharises* and two or three half-specimen plants of *Bougainvillea glabra* profusely flowered, the blooms being of a remarkably rich colour.

Chrysanthemums are cultivated in considerable numbers. Half an acre of ground is planted with them, and they will be lifted in autumn to flower inside. Thousands are grown in pots, but these appear to be principally *Elaine*. Some small plants of *Mrs. Dixon* were flowering, and Mr. Whittaker said they had scarcely been without flowers since last autumn. The young plants, although pushed forward in a close house, were strong in the spring, but are now standing outside.

The outside grounds are devoted to plantations of *Asters*, *Rhubarb*, *Mint*, *Sage*, and other herbs; the second and third named are largely forced, while whole houses are devoted to the growth of small salads during winter and spring; but in this branch of horticulture the palm must be given to our southern friends at the present. Young plants of *Tomatoes* occupied one house and were setting fruit freely.—W. B.

LONICERA SEMPERVIRENS MINOR.

WHEN at Messrs. Veitch's Chelsea nurseries about this time last year this *Honeysuckle* was pointed out as being a first-class conservatory climber. Having previously heard it well spoken of, I decided to give it a trial as a substitute for *Habrothamnus elegans*. I did not much like cutting away two plants of the latter, as this *Habrothamnus* is decidedly a most useful climber, whether for supplying cut blooms or the enlivenment of the house for several months of the year. Unfortunately they were badly infested with our greatest enemy—mealy bug, and were besides rather too coarse for the position. However, I had long since been well satisfied with the substitute. Planted out from 5-inch pots into the ordinary loamy soil of the conservatory bed they quickly commenced running, and at the present time nearly cover two light archways about 15 feet high.

The plant is always flowering, and we frequently cut handfuls of the sprays of bloom for vases or packing, as the case may be. The growth is wiry, yet sufficiently strong to support the beautiful sprays of trumpet-shaped reddish-yellow flowers. It is, in fact, much more elegant and serviceable than the heavy, drooping, and weakly-stemmed sprays of *Habrothamnus*. Cutting increases the floriferousness, as every lateral, which the running growths produce very evenly, will bear a spray of flowers from the axil of each leaf.

Thrips appear to be particularly fond of it, and as fumigation is out of the question in our conservatory we had recourse on one occasion to a decoction of quassia chips and soft soap. This was made by steadily boiling half a pound of the former and 1 lb. of soft soap in a gallon of water for about an hour, and used at the rate of a pint to a 3-gallon can of water, the plants being thoroughly wetted with the aid of a syringe. This effectually checked the thrips, but also much damaged the apparently very susceptible foliage. This season we tried paraffin oil or petroleum at the rate of 2 ozs. to the gallon of hot water, adding to a 3-gallon can a lump of soft soap about the size of a hen's egg. The latter was added to assist in the difficult matter of mixing the oil with the water, and besides this it is always necessary to either forcibly return each alternate syringeful into the can or to have a second syringe constantly stirring. The water is employed heated to about 120°, and the mixture is syringed off in the course of half an hour. It is safest applied in the evening and during dull weather, as bright sunshine is apt to injuriously affect the plant operated upon. I give this well-known recipe, not because I believe it so effective as a thrips and green fly-destroyer as either the decoction of quassia chips or tobacco water, but simply because I find it invaluable as a destroyer of mealy bug. This mixture again damaged the older leaves of the *Lonicera*, and for the future we shall employ the decoction of quassia chips and soft soap more diluted.

I believe *Lonicera sempervirens minor* is commonly called the Japanese Trumpet Honeysuckle, but I have searched in vain for a description or history of it.—W. IGGULDEN.

THE MUNSTER SCHOOL POTATO EXPERIMENTS.

THE following remark occurs in the interesting review which appeared in your issue of last week (page 135) on the experiments made on the cultivation of the Potato at the farm of the Munster Agricultural and Dairy School:—"Kainit and euraçoa phosphates gave 15 tons 19 cwt., a fact which seems to prove that nitrogen may be dispensed with, although we think it a pity that nitrogen should not have been given along with both kainit and phosphates."

No doubt there are soils to be found so rich in nitrogen as to meet the wants of the Potato or any other crop without an additional supply, but this can scarcely be so common as to render it prudent to dispense with this element in manures for ordinary cases. Unfortunately the composition of the soil at Munster is not indicated in your review (perhaps it is not given in the report), but the following table taken from Ville's interesting work may keep some of your readers from being misled by these experiments in so vital a point as the value of nitrogen in the cultivation of the Potato. The table not only shows the results which may follow from the elimination of nitrogen from the manure used, but how much its value is influenced by the presence of potash:—

		Result per acre.	
		1865.	1867.
Normal manure	11 tons 3½ cwt.	9 tons 16¾ cwt.	
Manure without nitrogen ...	6 " 14 "	8 " 6¾ "	
" " phosphate ..	7 " 3 "	— " — "	
" " potash	4 " 4 "	4 " 4 "	
Without any manure	3 " 1½ "	3 " 0 "	

The suppression of potash caused the crop to diminish from 9 tons 16¾ cwt. to 4 tons 4 cwt., the soil without manure yielding only 3 tons, and as Ville remarks—"But this is not all. You will see by the preceding table that by reducing the proportion of nitrogen in the normal manure from 103 to 67 lbs. per acre [for these were the quantities of that element used in 1865 and 1867 respectively] we only obtain with 103 lbs. of nitrogen 11 tons 3½ cwt. tubercles per acre; with 67 lbs. of nitrogen 9 tons 16¾ cwt. tubercles per acre. By suppressing the potash in the two manures the results became equal. The excess of nitrogenous matter was altogether useless, and no longer exercised any action." "When the dose of potash was doubled the result was—normal manure with 103 lbs. of nitrogen 11 tons 3½ cwt.; manure without phosphate, 7 tons 3 cwt.; ditto, but with double dose of potash, 11 tons 4 cwt." "A remarkable instance," says Ville, "of the preponderant action of the dominant constituent." These crucial experiments appear to me to put the whole case in a striking and clear light. As Ville truly remarks, they are of "exceptional interest by reason of the ill effects that attend insufficient or badly composed manure" in growing Potatoes.—INQUIRER.

PLANTS IN POTS—LILIES.—At this time of the year gardeners are very busy, and when plants have bloomed it is but too common to see them placed out of the way, often fully exposed to the sun, which treatment, excepting perhaps for Pelargoniums and a few others that

require ripening, usually causes great injury to the roots. Often Cyclamens, Begonias, and many others suffer in this way; but I principally wish to urge more careful after treatment for Lilies when grown in pots, especially *L. auratum*. Too frequently they are said to be good the first year after importation and gone the third. This is often the cause of failure, and importers are not to blame. Remove the seed pods when the flowers fall, and grow them carefully on with plenty of water until the stem becomes yellow and withered.—W. J. M., Clonmel.

TALL SUMMER PERENNIALS.

BEING often asked to recommend tall and showy perennials for border decoration to flower late in summer "when the family are down," I mention a few which are in full flower here now on the 12th of August, reminding the readers that Cheshire is from a week to a fortnight later than counties to the south of London. I include nothing which does not grow more than 3 feet high.

Campanula pyramidalis.—Grows 6 feet high; colour blue or white. Requires a strong moist soil to flower well out of doors, and does best treated as a biennial from seed sown early the first year; but if the bed in which the seedlings are planted is kept undisturbed, fresh plants keep coming up from fragments of roots, which may be planted in the borders in spring to flower in autumn. A showy plant where it thrives.

Verbascum nigrum.—This, though a common native in the south of England, is a good border plant for any soil, to flower in July and August. If divided in early spring the size of the flower spikes is larger in proportion to the leaves, and the height is less. Roots may be divided in autumn, and are better for it. The white variety is a very beautiful plant, but requires a little more attention than the common form, or it may be lost.

V. Chaixi.—Though *V. nigrum* is often sent from nurseries by this name, the true *V. Chaixi*, called also *V. orientale*, is an oriental form of *V. nigrum*, and is quite distinct in form and habit. The leaves are broader, the flowers larger, and the stem, which is 5 or 6 feet high, being branched for its whole length. It is a very good plant. I have never seen a white variety of it, those entered in catalogues as *V. Chaixi album* being always *V. nigrum album*.

Monarda didyma.—In a moist soil and a sheltered but not too shady position this is a truly grand August plant. It should be replanted annually in a fresh spot, two or three shoots in spring being sufficient to make a fine plant if the soil is rich. With me it grows 5 feet high in the best positions. I have never seen a white *M. didyma*, those advertised being always *M. fistulosa*, a very inferior plant with dusty white flowers.

Aster puniceus.—A large-flowered, free-flowering, mauve or slate-coloured early Michaelmas Daisy 5 feet high, having two or three distinct varieties and more names. I took great pains to get it rightly named, and hope I succeeded. It is a good back-row plant, but requires frequent division to enable the flowerheads to be properly developed.

Veronica verticillata, alias *virginica*.—A tall upright species 6 feet high or more, with stiff slender stems, branched vertically, and flowers nearly white. Leaves in regular whorls, distinct and elegant, taking little room, and not particular about situation.

Veronica spicata var. *longifolia*.—I venture to name a large class of Veronicas in this comprehensive way, as I am convinced that no distinctive line can be drawn to separate them. The finest is a well-known variety called *subsessilis*, growing about 4 feet high when the plant is two years old, but being more elegant and ornamental when grown from an early spring cutting, when the proportion of flower to leaves is larger. Of other forms there are blue, white, and rose-coloured varieties, ranging from 2 feet to 4 feet in height. With regard to the distinction between these very variable and confused species, it is generally thought that the large forms with deeply serrated leaves and long petioles belong to *longifolia*; but two years ago I carefully saved the seed from a dwarf native plant of *V. spicata* not more than 6 inches high. The seed produced every form from the dwarfest *spicata* to the largest *longifolia* 4 feet high with serrated long-stalked leaves.

Astilbe rivularis.—A coarse plant, and less elegant than *Spiraea Aruncus*, though flowering a month later, and in the same style. The form of the flower spike is handsome, and the flowers dull white; but it is a robber of the soil, and spreads much at the root.

Stenactis speciosa.—Upwards of 4 feet high, extremely free-flowering, continuing in full flower for at least two months; like a Michaelmas Daisy, with very large lavender-coloured heads.

Malva Aleca.—Five feet high, with abundant flowers of clear pale rose of good substance.

M. moschata.—Both the rose-coloured and the white forms are

worth cultivating, growing 4 feet high in cultivation, and continuing in flower all July and August. Both come true to colour from seed, and may be considered full grown at two years old.

M. Moreini.—The strongest in growth of all the Mallows, exceeding 6 feet in height, and producing larger flowers of a deeper rose than the others. It ripens seed plentifully, flowering well the first year.

Aconitum Napellus.—Amongst the many names under which the Aconite is sold, none, with the exception perhaps of *A. autumnale*, a very late flowerer, surpasses the old type. *A. N. bicolor* with dark blue and white flowers is now very handsome. One, sold as *A. N. album*, has pale dull yellow flowers, but not white; it grows upwards of 6 feet high.

Leucanthemum lacustre.—Over 6 feet high, with smooth glossy leaves, and flowers resembling those of an Ox-eye Daisy, but much larger and of more substance. It is a first-rate back-row plant, though its flowers are far inferior to those of *L. atratum*, a plant with far larger flowers, but not growing half the height, and, therefore, not to be admitted in this list.

Matricaria inodora flore-pleno.—Grows fully 4 feet high, and produces white double flowers without end. Strikes readily from any part of the stalk; and though it must be renewed annually requires no shelter to strike it, and makes a good show with little trouble.

Centaurea aurea.—A tall free-flowering plant, with leaves like those of *C. montana*, but flowers like those of a large yellow Thistle. The flowering period is long, and the habit of the plant good.

Mimulus cardinalis.—Three distinct colours of this, all of them 4 feet high, and producing a dense mass of flowers, are grown here. The strongest has rich crimson flowers, and is known as Crimson King. Another has rose-coloured flowers. The third is the old type with scarlet flowers.

Achillea Ptarmica flore-pleno.—A decidedly useful plant either for show in the border as a white flower or for cutting. It increases fast by underground runners, and should be planted on that account, confined by an earthenware ring, a plan which I find to succeed very well with such plants.

Eurotia fruticosa.—This grows 4 feet high, and flowers all through the summer. It requires to be frequently divided to keep it in a condition to make the best show.

Lysimachia ciliata.—The flowers of this plant, which grows about 4 feet high, are of a pale yellow and freely produced.

Catananche cærulea.—This grows about 4 feet high, and bears a long succession of pretty flowers. The plants flower the same year they are sown, and are perennial. The variety called "bicolor" with white flowers and purple centre should also be grown.

Stobæa purpurea.—This, too, if sown early flowers the same year. It has leaves like a Thistle, and large flowers in outline somewhat resembling those of a Passion-flower: colour dull white tinged with purple, borne from within a foot of the ground to the tops of the stalks, which are over 3 feet high. It is a novel and distinct plant.

The most showy yellow Composites now in full flower and exceeding 3 feet high, being all perennial and hardy, are *Helianthus* (or *Harpalum*) *rigidus*, 5 feet. It requires a warm dry soil, or the flower-stalks damp off. *Helianthus pubescens*, very free-flowering, and second only to the last-named, to which the flowers bear a great resemblance, but are rather later. *H. decapetalus* 5 feet; flowers smaller, but very abundant. *H. multiflorus*, double and single, 5 feet. *Helenium autumnale*, 4 to 5 feet high, varying in size and habit of flowering. A dwarf form called *H. pumilum* is excellent, but does not exceed 2 feet. *Inula macrocephala*, 3 feet, rather a disappointing plant, as the beds seem as if the flowers meant to be much larger than they are, but the bright gold colour is good. *I. Helenium*, 6 to 8 feet high; a grand plant in a moist rich soil, if only for its foliage. *Telekia cordifolia* or *speciosa*, 4 feet high, large deep yellow disks with drooping long rays. *Silphium perfoliatum*, 6 feet high, handsome foliage, and distinct in style. *Rudbeckia laciniata* or *digitata*, 8 feet high, and very showy and free-flowering, though a coarse plant. *R. californica*, quite distinct from the last, having downy undivided leaves; flowers fewer, but much larger and deeper in colour, height seldom exceeding 6 feet. A splendid back-row plant. There are many other tall yellow late Composites, but for August-flowering these are amongst the best.—C. WOLLEY DOD.

TAUNTON DEANE HORTICULTURAL SOCIETY.

THE county town of Somerset, pleasant in itself and pleasant in its surroundings (for there can hardly be a more lovely valley for richness and wealth of foliage than the Vale of Taunton), was again the scene of one of those successful flower shows (for which it has become famous) on Thursday last; and whether one has regard to the quantity

and quality of the exhibits, the admirable character of the arrangement, or the hearty manner in which it was taken up by the town and neighbourhood, an example was furnished of what can be done when people put their shoulder to the wheel; and if it be true that fortune favours the brave, it was eminently so with the Committee of the Taunton Show. A fine day (although the morning had been threatening) tended, of course, largely to its success, and during the afternoon most of the leading families in the neighbourhood attended. How different this is from those parts where hardly one would even attempt to put in an appearance—would perhaps subscribe to its funds, but never use their tickets! The Exhibition was arranged in tents, one containing the open classes, one that for amateurs, one for fruit and vegetables, another for cottagers, and the fifth for table decorations and bouquets; and all were well filled, the amateurs' tent perhaps not so well as I have seen it. The outdoor fruits, as might have been expected in such a season as this, fell short; but in all other classes the entries were numerous—the vegetables especially good.

I think it is not too much to say that a finer collection of plants at this season of the year was never shown than those exhibited by Mr. Lawless of Exeter (whose gardener, Mr. George Cole, is one of the renowned Manchester firm) and Mr. James Cypher of Cheltenham. The plants in Mr. Lawless' collection were *Lapageria rosea* and *alba* trained on balloon trellises; *Ixora Prince of Orange* and *Fraseri*, *Dipladenia Brearleyana*, *Erica æmula* and *Marnockiana*, *Stephanotis floribunda*; and *Allamanda nobilis*, *A. Hendersoni*, *A. grandiflora*, and *Clerodendron Balfourianum*. Where all were good it is difficult to particularise, but I think it was impossible to imagine anything more remarkable in culture than the two plants of Heaths; they were covered with blooms, and in the very highest perfection. Mr. Cypher's plants, hardly behind his competitor's, were *Ixora Pilgrimi* (very like *Fraseri*) and *Ixora Duffii* (a remarkable though somewhat coarse-looking plant, reminding one rather of *Clerodendron fallax*, but likely to be useful as an exhibition plant); *Ixora Williamsii*, *Bougainvillea glabra*, *Erica Irbyana*, *E. Candolleana*, and *E. Austiniana*; *Allamanda nobilis*, *Stephanotis floribunda*, *Anthurium Schertzerianum*, and *Erica æmula*. For six plants Mr. Cypher was first with a remarkable specimen of *Hæmanthus magnificus*, *Erica æmula* and *E. Marnockiana*, *Allamanda grandiflora*, and *Clerodendron Balfourianum*. In the class for foliage plants the same competitors were first and second, Mr. Cypher in this instance beating his opponent. He had at the back three grand Palms—*Thrinax elegans*, *Areca lutescens*, and *Latania borbonica*; while in front were fine plants of *Cordyline indivisa*, *Croton angustifolius*, *C. Disraeli*, and *C. Sunset*; and although the first of these Crotons is an old plant, what can be more lovely than it is when it is well grown? Mr. Lawless' collection contained *Latania borbonica*, *Croton Disraeli*, *Anthurium Veitchii*, &c.

The Fuchsias, as usual in these western shows, were remarkably good, the two best collections being so evenly balanced that the Judges were compelled to place them equal. Ferns were not so well shown as usual, but there were some fine specimens of *Adiantum farleyense* and other good kinds. Amongst the new plants exhibited were *Anthurium Andreanum* and a very remarkable *Disa* by Mr. Cypher of Cheltenham. This came up in an imported clump and would seem to be a seedling. It is totally distinct in colour from *Disa grandiflora*, having a white labellum and creamy-coloured sepals. Its habit is the same, and it would therefore appear either to be a natural hybrid or sport, more probably the latter, as there are flowering stems of the type in bloom in the same pan.

As usual there was a good display of cut flowers, although Mr. Keynes did not exhibit either in Roses or Gladioli. Roses were not (as they seldom are in August) very good. The best both in twelve trebles and twenty-fours were exhibited by Messrs. Cooling & Son of Bath. The best of their blooms were *Xavier Olibo*, *Jules Finger*, *Senateur Vaisse*, *Comtesse de Serenye*, *Madame Eugène Verdier*, *Madame Fillion*, *Baron Haussmann*, *Baroness Rothschild*, *Madame Hunneville*, *Richard Laxton*, *Lælia*, *Robert Marnock*, *Pierre Notting*, *Vicomte Vigier*, *Reynolds Hole*, *Star of Waltham*, *Alfred Colomb*, and *Duchess of Vallombrosa*. Dahlias were exhibited by Mr. Latin and Mr. Harkness of Bedale in Yorkshire. Some of the best blooms in the first-prize collection (Mr. Latin's) were *Ovid*, *Vice-President*, *Flag of Truce*, *Marchioness of Bath*, *Lady Gladys Herbert*, *Alex. Cramond*, *James Service*, *Lord Chelmsford*, *Rev. J. Fielding*, and *John Bennett*.

Gladioli were well exhibited. Mr. Kelway sent a fine stand mainly composed of his own seedlings, which made a fine exhibition at the end of the tent. The two competing collections were those of Mr. Dobree, who for so many years has successfully competed here, and Mr. Harkness, who grows them so well in far-off Yorkshire. Mr. Dobree had fine spikes of *Adolphe Brongniart*, *Horace Vernet*, *Amalthie*, *Cymbal*, *Fair Maid of Taunton*, *Vagrant*, &c. Mr. Harkness's collection was remarkable for some fine spikes, but more especially for the excellent manner in which some of the very old varieties were shown, such as *Penelope*, *Velleda*, *Meyerbeer*, and *Ninon de l'Enclos*. He had besides fine spikes of *Adolphe Brongniart*, *Orphée*, *Leander*, &c. I cannot omit mentioning here a splendid stand of a new white Clove, The Governor, about which there has been some controversy; but about the excellence of which, I think there can be no doubt. It is large and well formed, and there is no fear of the pod bursting as in *Souvenir de la Malmaison*.

It need hardly be said that the table arrangement of Mr. Cypher left little to be desired in tasteful arrangement and effect. A Palm

in the centre springing out of a flowery base, and two glass stands at the ends, together with specimen glasses carefully placed, constituted a most beautiful arrangement. It was to be regretted that only one competitor appeared against him, and this, though a little overdone, was very good.

Nothing could have been better than the manner in which the arrangements were carried out, and much credit is due to Mr. Samson the indefatigable Secretary for the manner in which all was done.—D., *Deal*.



RELATIVE to the flagrant example of PLAGIARISM which was submitted on pages 99-100, we have received the following letter from Mr. George Humphrey, head gardener at Nash Court near Faversham:—

"Your issue of August 3rd contains articles on 'Allamanda Culture.' Kindly allow me through your columns to inform Mr. Bardney and my many friends, and the horticultural-reading public in general, that my hands are clean of the whole affair, and I think I may venture to say that those who know me also know that I could not be guilty of such a discreditable act as my foreman, 'D. D.,' is charged with. My foreman's name is Daniel Dowdeswell."

Daniel Dowdeswell has, in an exculpatory paragraph in the paper in which the abstracted article appeared, stated that he "simply recorded his own experience." We observe he does not deny the charge against him of copying Mr. Bardney's article and foisting it on the public as his own. Daniel Dowdeswell has made himself notorious, and has shown that he has no claim to literary ability, and he had better have left the record of his "own experience" to someone else.

— THE INJURIOUS EFFECTS OF BRICK KILNS ON VEGETATION are, as we have seen more than once, of a very serious nature, and occasionally lead to litigation. At the Gloucester Assizes a case was decided in favour of Mr. Foster, nurseryman, against Mr. Harper, a proprietor of brick kilns. The trees and shrubs of the plaintiff had sustained damage by the sulphurous vapour from the defendant's kilns, which were some 150 yards from the nursery. The case was tried before Lord Justice Bowen and a special jury on the 5th inst. The jury adopted the very practical course of visiting the nursery and seeing the damage that had been done. The question in dispute was exhaustively argued from a legal standpoint, but his lordship put the matter very clearly when he observed—"Suppose fire comes from the chimney of the blast furnace and sets fire to a crop near. What is the difference between the sparks of fire falling and burning it and the fumes of acid gas coming and burning it?" The injury being admitted a verdict of £50 damages was recorded for the plaintiff. The next morning Mr. Matthews asked for judgment for £50, with costs, and an injunction. The Judge granted an injunction, and said the defendant would not be restrained from burning bricks, but from burning them so as to cause damage.

— THE forty-third anniversary meeting of the ROYAL BOTANIC SOCIETY was held on Thursday last at the Gardens, Regent's Park, Dr. H. A. Pitman in the chair. The annual reports gave a satisfactory account of the finances of the Society, the receipts for the year having exceeded the expenditure by over £306. The number of subscribers joining during the year—118, exactly corresponded with that of last year, and was above the average of the last twenty years. In addition to the usual flower shows, exhibitions of special groups or classes of plants had been undertaken. These were thought useful, as enabling amateurs to compare in one view the many varieties of one class of plants. Above £800 had been awarded at the exhibitions in prizes for the encourage-

ment of the cultivation of plants, flowers, and fruit, and so large was the collection of exhibits sent in competition for these prizes that much difficulty was experienced in finding suitable accommodation for them. Medical and other students, artists, and those whose pursuits had any connection with the vegetable kingdom, had been granted free-admission tickets. The distribution of cut specimens was so highly valued that 827 tickets had been applied for and issued, and nearly 37,000 cut specimens distributed.

— MR. T. S. WARE of Tottenham sends blooms of a very promising white Clove CARNATION named GLOIRE DE NANCY, respecting which he observes:—"The white is very pure, and the scent true clove; its grass and habit are identical with the old Clove, and it has every appearance of growing equally as free. I know of no variety so well suited for outdoor growth, and feel sure it will, when known as a white Clove, eclipse the popularity the old Clove has gained." The blooms are of good size, extremely fragrant, and are freely produced—recommendations of considerable value, which will rapidly bring it into general favour as a border plant.

— DR. C. STUART, Hillside, Chirnside, N.B., writes:—"In the endeavour to cultivate single flowers such as Pyrethrums, Dahlias, &c., I send you a bouquet of SINGLE QUILLED DAISIES which I have raised this season. They may not be worth much, but are very much admired by the ladies for cutting for the glasses as something new in colour at this season." We can readily understand that such flowers would be admired by ladies, for they are extremely bright and pretty, and somewhat suggestive at first glance of the small Erigerons. The florets are neatly quilled, deep or pale rose and white, and would undoubtedly have a charming effect arranged with other flowers.

— A CORRESPONDENT is desirous to know who was the raiser of FOX'S EARLY POTATO. It is a variety which has become of late years very scarce, but forty years ago it was a favourite early variety. We find it mentioned by Mr. T. A. Knight in 1810.

— MR. G. STEGGLES, The Gardens, Faulkner's House, Tonbridge, writes as follows:—"TOMATO ABUNDANCE is a new variety sent out this season, and in my opinion is the finest in cultivation. It grows to a large size. I have cut fruits from half a pound to 1½ lb. in weight each. Some of the fruits are corrugated and some round, smooth, and very handsome. The flesh is solid and very agreeably flavoured. It is a free setter and rather a vigorous grower. Those who have not grown this kind will do well to add it to their collection, and I think they will not be disappointed."

— WE have received prospectuses and regulations of the INTERNATIONAL FISHERIES EXHIBITION to be held in London in 1883 under the patronage of the Queen and the presidency of the Prince of Wales. The Exhibition, it is stated, will be opened on May 1st, and continue open for six months, the exhibits to "include specimens of all kinds of fish life, and to illustrate all the modes by which the marine and fresh-water animals of economic value are captured and utilised, together with the commercial, scientific, social, historic, and legislative aspects of such fisheries." Medals in gold, silver, and bronze, with diplomas of honour, will be awarded to the exhibitors. All particulars, with forms of application, &c., can be obtained from the Secretary, 24, Haymarket, London, S.W.

— WRITING ON HOUSE FLIES "J. C. B." observes:—"I can promise 'C. A. J.' not only 'a few moments' peace,' but entire immunity from the attacks of these insects, if he were to procure a box of Myocom Fly Gum, and use it according to the directions given with it. Strings coated with the gum are suspended from the ceiling, and the fly that settles thereon is doomed, acting also as a decoy to the rest, so that in the course of a few days the

room is cleared of them. With respect to the objections that have been made to the use of this gum, I may state that there is no need to let the flies linger and die, as the strings may be taken down daily and the insects killed."

— THE fourth Exhibition of the WAKEFIELD CARNATION AND PICOTEE SOCIETY, which was held last week, exceeded all previous exhibitions. The prizetakers in the chief classes were Messrs. J. Madoek, H. Gill, G. Lamb, W. Wilson, A. Spurr, W. Mellor, J. Battersby, J. Hardwick, J. Steel, and J. Netherwood. The premier Carnation was Admiral Curzon, exhibited by Mr. H. Gill; and the premier Picotee Lady Holmesdale, staged by Mr. T. Madoek. Mr. George Rudd of Bradford was the competent Judge of the Exhibition.

— Mr. F. BEZANT, The Rectory Gardens, Aversham, sends us the following note:—"I send you an Apple of D. T. FISH from a pyramid tree which I planted two years ago last October. It is a strong grower and good cropper here, with very fine even fruit. The Apple measures $11\frac{1}{2}$ inches round, and I recommend all growers to give this variety a trial, as it is an excellent kitchen Apple." Without doubt the variety is worthy of extended culture, and probably not a few of our readers have "D. T. Fish" without knowing it under its right name—Warner's King.

— CONCERNING semi-double ZONAL PELARGONIUMS Mr. Iggulden writes:—"We have now a great, and I may say bewildering, variety of these to select from; and seeing how extremely serviceable many of them are for flowering in large or small pots under favourable circumstances nearly all the year round, they deserve to be more generally grown. Single-flowering varieties may be the most showy, but for cutting and various decorative purposes are less valuable than the semi-doubles. One of the most successful propagators of, and a good authority on Pelargoniums, recently kindly favoured me with what he considers a good well-varied selection of semi-doubles. The selection consists of Heteranthe, orange scarlet; Victor Emanuel, salmon; F. V. Raspail, deep scarlet, very fine; Henry Cannell, bright crimson; Gambetta, rosy scarlet; Jean Dolfus, magenta; Madame Thibaut, pink; Madame Thiers, white; Nympe, white; and Guillon Mangilli, crimson."

— AN American contemporary has the following note:—"Important in reference to their value in rural economy are the ACACIA FARNESIANA, which produce the fragrant flowers so much used in perfumery, and the A. HOMALOPHYLLA, the wood of which is highly prized and dearly paid for by manufacturers of fans. In every Moorish garden in North Africa there can be seen a few trees of the A. Farnesiana, of which the flowers are gathered by women and children for family use; whilst in France and Italy it furnishes a not unimportant article of commerce. In the district of Cannes alone about 36,000 lbs. of flowers are yearly produced, for which the perfumers pay from 50 to 75 cents. per pound, which would amount to about 45,000 dols. One tree furnishes, according to age, from one to five or more pounds; and one acre planted with about eight hundred trees would produce in a few years a notable increase of income to many of our farmers, some pin money to their wives, besides making farm work and farm life both pleasant and profitable to their children. But this pleasant prospect cannot be realised as long as the extraction of perfumes is not undertaken, because the Acacia flowers, like most of those flowers whose perfume is extracted, must be treated while fresh and on the spot."

— A WRITER in the "Gardener" has the following upon AQUILEGIA CHRYSANTHA:—"This is one of the aristocrats among hardy flowers. The whole family is attractive, but there is a dignity, grace, and refinement about this one that makes it a favourite wherever it is seen, and as it is easily come by, and a

free grower and bloomer, it is an 'everybody's' flower. It may be divided, but is very much better raised from seed, from which it comes perfectly true. Possibly the best time to sow is in spring, either in a particularly favoured spot or under a handglass in light rich soil. As soon as the plants have made three or four leaves they should be pricked out in half loam, half well-rotted manure, and watered should the weather prove dry. Under such conditions the plants will be strong by midsummer, when, during showery weather, they should be planted in the places they are destined to occupy. Transplanting should be done carefully, for it resents careless handling. As old plants fail it is best always to have a young batch coming on. For cut flowers it is a gem."

WASPS.

REPLYING to Mr. Robert Warner's letter in your impression of the 10th inst., I would inform you that we had an abnormal number of queen wasps make their appearance early this spring, and fearing for the fruit crop we paid 2d. each for them up to the middle of June. In spite of the great quantity of rain, which frequently injures the nests, the young insects have appeared in great numbers, and fully a fortnight earlier than usual. We have already destroyed four large nests, and my men inform me that they know of fourteen more. I would add that our situation is about ten miles nearly due north from London.—WINCHMORE.

My experience at the present time is just the reverse of Mr. Warner's. I think I never saw so many queen wasps in the spring—certainly not for many years past. During April I destroyed two small nests, each with eleven maggots in them; these were in some Rhubarb roots which were put in a cold frame. After that I did not see a wasp until about three weeks ago. On the 6th inst. I destroyed the first nest. Since then I have destroyed fourteen within an area of 400 square yards. This is considerably more than I have ever known in such a short time and so near each other, for as a rule there are not many wasps in this neighbourhood—not a quarter as many as there are in some of the midland and northern counties. Although the nests are very strong in numbers I do not know what the wasps live upon, for I have not seen one on any of the fruits, either Grapes, Gooseberries, Plums, or Currants.—D. WALKER, *The Gardens, Dunorlan, Tunbridge Wells.*

WHY, WHEN, AND HOW WE MANURE OUR VINES.

WHEN I wrote "Of course urine contains no phosphoric acid" I referred to what is to be had at the stables, for sheep urine is hardly ever to be obtained, or that from swine either, and human urine is generally disposed of as quickly as possible. When the words "very weak" were used in regard to the water from the sewage tank, it was more with reference to the usual strength of liquid manures than to the usual strength of sewage water. As that referred to is mixed only with the water which comes from the closets, kept distinct from what comes from bath-rooms, lavatories, pantries, sculleries, laundries, and so forth, it is not to be compared with ordinary sewage water. The sewage from towns is mixed with all these and much more, and is comparatively valueless compared with what we use here. Although a weak liquid manure as gardeners would view it, it is quite as strong as such waters ever should be used when large quantities are required. As to how many grains of phosphoric acid it contains per gallon I cannot even hazard an opinion; but applied to all sorts of vegetables and plants, including those in pots, its action is very satisfactory indeed. For giving small plants a start nothing can be better.

When I said that in seasons of drought its application to Vines was very satisfactory I did not intend to mean that the applications were made to plants suffering from drought. Under such circumstances the mistake might be made of attributing to manurial matter effects brought about by the water alone. What was meant was that here in seasons of drought the water supply is apt to fail, and the garden supply has to be brought from a distance. To give Vines nothing but liquid manure for a whole summer might look like excess; but having tested such as is used here against pure water, or as pure as is generally found in canals, the results are in favour of the sewage water. Such results, we think, may be fairly attributed to the manurial matter contained in it, and we may safely conclude that four or five thousand gallons contain more—very much more—phosphates and nitrogen than an ordinary house of Vines can possibly want in a season.

Potash is amply provided as well, and if not, the annual application of urine "maka siccar."

I study economy, and "take that which lieth nearest" if reasonably certain that the best results can be thereby attained. For this reason I think Mr. Taylor errs, not in using closet manure, but in using such an extremely costly manure as Standen's. So far as that is concerned, I certainly think a better system of manuring Vines could be adopted. It is perfectly certain that £10 properly spent will go as far, if indeed not much further, than £100 spent on any of the fancy manures which are put up in small packets. When gardeners generally get to know what plants really want, and the sources of plant food, we may expect a big national saving under this head.

As for the closet manure and its real value, very much depends upon the amount of earth with which it is diluted. Earth from those modern contrivances, when large quantities of screened ashes are used, may be very well from a sanitary point of view, but they render the excreta dear for the carriage if the distance is great. When properly dried surface soil from loamy or clay land is used, and only sparingly so, not only is a perfect state of sanitation reached, but the resulting manure is of real value. When, as is the case here, it comes from public works, where earth is very sparingly used, where the sanitary arrangements are indeed so bad that no earth at all is used often, the manure is of the most valuable character, and is worth certainly three times as much as ordinary stableyard manure for many crops. Here a piece of land was recently enclosed that was so thin and poor, and with a subsoil so hard as to be nearly impenetrable, that Oats would scarcely grow. Although not more than 6 inches deep, yet dressed at the rate of 25 tons an acre with such manure as we have described, it has produced enormous crops of Cauliflowers, &c. Many of the Cauliflowers have been over a foot in diameter, and of fine appearance and quality. Brussels Sprouts and Savoy's have indeed grown much too strongly. It is only fair to say that the season has been very favourable, as the soil has never been anything but moist. In addition all our short grass was used as a mulch, for we dreaded the results that would in such a soil have followed drought. Next year Potatoes will be planted with no further manuring, and experience leads us to expect a first-rate crop. As to what value should be placed on manure from earth closets, then, it is difficult to say.

As for the best way of manuring Vines I think, for reasons given before, no better plan exists than utilising sewage and urine in some such way as we do here; the one contains all the potash, the other the phosphates, and between them everything else plants of any description require. When such can be had no more economical or satisfactory plan can be pursued; all else that is needed is occasionally a little lime and plenty of water. When neither can be had I should employ bones, or, perhaps, better because more economical and likely to be equally efficacious, mineral phosphate, or other cheap phosphate to supply phosphoric acid. Where wood ashes were to be had I would not hesitate to rely on them for furnishing potash, magnesia, and lime. Failing that I would employ kainit, or a cheap source of potash, and apply quicklime sparingly. As for nitrogen, so long as we have sulphate of ammonia or nitrate of soda that need bother none of us. Possibly combination manure might prove more suitable and in the end more cheap. For instance, guano contains plenty of everything except potash perhaps. Then such manures as "Fimus" might go far to solve the problem. The fact is there are a hundred ways whereby Vines might be cheaply supplied, but few, very few, of us are in a position to do more than glance at the subject. I wish the horticultural world could induce the Government to grant a few thousand pounds to establish a garden where these problems could be solved by someone having at once a knowledge of gardening and science to enable him to conduct such experiments to a successful issue. Some people might consider this a waste of money, but it would in the end undoubtedly lead to an enormous saving. At the worst it would only cost the price of a few puffs of gunpowder, and one or two shells more or less. It is tantalising to see how such problems could be solved and yet be unable to move towards their solution.—SINGLE-HANDED.

A WEEK IN LONDON.

IN some departments of art London may be rivalled, but in horticulture it stands pre-eminent among gardeners. The parks, nurseries, private gardens, market gardens, as well as the great markets, form a collective body of gardening attractions not to be found elsewhere. Under such circumstances it is not surprising that country gardeners should look towards this great metropolis for improvements in their art, and no one who is observant can spend a few days there without gaining knowledge which must be of the utmost advantage to him.

In summer flower garden decoration the parks afford a wide field of observation both in design and the plants employed, and as much skill is devoted to arrangement and effect by the intelligent superintendents new ideas are put into practical shape annually. To describe all that is worth seeing would require far more time and space than can be given here, but no gardener who visits London should leave again without inspecting the parks. Battersea, Hyde, Victoria, and Regent's are the best, and apart from their flower garden interest capital ideas of effective planting may be gained in all of them; indeed, it would be most difficult to find a more interesting or beautiful park in any part of the country than the one at Battersea. The freshness distinguishing it is surprising, as the air is pure and the trees quite free from the discoloration which generally disfigures many about towns. Blue and white is a favourite combination of colours at Battersea. White variegated Pelargoniums and blue Lobelias are very pretty, and Acer Negundo and blue Delphiniums are more noble and equally beautiful. Some trellises about 6 feet in height covered with the fine free-flowering Clematis Jackmanni have a fine effect, as the plants are not spoiled by being tied-in too closely. The fine specimens of Ferns and Palms which are arranged in the sheltered dells of the subtropical garden have a charming effect. Pandanus Veitchii is regarded by most of us as a tender stove plant, but during the latter half of July we saw it in some of the beds in this Park in good condition. Coleuses are much more sparingly used in the London parks now than they were a few years ago; in fact, they seem to be on their last trial, as they appear dull against the Alternantheras, which furnish the bright colours in most of the foliage beds. In Regent's Park we thought the Golden Feather Pyrethrum was too abundant, but this may have been more from compulsion than choice, as all plants appear to suffer more there than in any of the other parks.

Booking at the Victoria Station for Clapham Junction, changing there, and proceeding to Hampton Court, gives a prospect of a poorly farmed district; but the termination of the journey is most satisfactory, as of all the parks about London Hampton Court is the most enjoyable. The Palace itself is a unique structure, and the flower garden has of late years gained considerable fame. The carpet beds are perfect in arrangement and condition, and reflect the highest credit on Mr. Graham. The beds filled with flowering plants there are also grand examples of their kind. John Gibbons Pelargonium, which was the pet seedling of my lamented friend Mr. J. R. Pearson, is the best of all the scarlet varieties grown. In number and size of trusses and deepness of colour it must command the attention of all. Combinations of scarlet and white were most effective there. One bed planted with dwarf specimens of Acer Negundo variegata and a splendid scarlet seedling Verbena was charming. The Acer branches were pegged down, and the white leaves and the scarlet flowers combined most happily. A fine collection of all the best herbaceous plants is an attractive and new feature. In the garden where the large Vine is situated improvements are visible since Mr. Stirling became Superintendent. The Vine itself has now something more genial than a hard road over the principal roots, and as we knew Mr. Stirling as a good Grape-grower when at Park Wern with Sir H. H. Vivian this historic Vine is not likely to suffer in his hands. This year it is bearing about 1200 bunches, which are very evenly distributed over the house, and will weigh about 1 lb. each. The idea that this Vine owes its extent and existence to its roots feeding in the River Thames is not confirmed by a personal inspection of the ground or situation. A long row of Orange trees which line one side of the walk leading to the vinery appear as if they would be benefited by frequent applications of liquid manure.

From Hampton Court to Kew is not a great distance, and this is the only way those interested in plants and flowers should return to London. Since we last saw Kew some twelve years ago the outdoor trees and shrubs have made good progress, many of them have now gained the proportions of fine specimens, and their health is all that could be desired. The new rockwork is a valuable addition to the many attractions. The flower beds in front of the large Palm house and those along each side of the long broad walk which form the flower garden part of Kew, are tastefully filled. Under glass the plants were in excellent health, and altogether Kew is in most satisfactory condition. As a public place of resort Mr. Smith, the able and courteous Curator, assured me it is becoming annually more popular.

Chiswick, "dear old Chiswick," as it has been lovingly termed by Mr. W. Taylor and others who have gained much knowledge there, is only some two miles Londonwards from Kew, and if I were asked which garden is most worth seeing about London I should have no hesitation in answering Chiswick. The collections of plants, fruits, and vegetables are extensive, and, what is of equal or more importance, everything is well cultivated. The Tuberous Begonias were fine. I have seen collections of these at our horticultural and agricultural shows, but the Chiswick plants overshadow them all in size, bloom, and general finish. The single and double Pelargoniums were surprisingly fine, the plants being most profusely bloomed. The Grapes in several of the vineries are in excellent condition. Considering the season Pears and Apples are a good crop, and small fruits are abundant. In the vegetable quarter the Pea crop interested me much, as there were numerous varieties on trial; but after inspecting them my opinion was that if all the newest and best Peas in the country were there nothing much superior to what is now in

commerce will be offered for years to come, as I saw none to equal several of Culverwell's varieties. Culverwell's Giant Marrow as seen at Chiswick is poor, and bears little resemblance to the grand original.

Visiting Hampton Court, Kew, and Chiswick is a comfortable and instructive day's work. Another may be most profitably spent among the nurseries of Messrs. Veitch, Bull, and Williams. The name of "Veitch's" is as well known to all gardeners as the word "London," and it will hardly be necessary to advise any to visit this excellently managed establishment. The Chelsea nurseries are some 5 acres in extent, and 4 of these are covered with glass houses. The inmates of these include every kind of plant worth growing, from the choicest Orchid to the most common bedding plant. Seventeen houses are devoted to Orchids, and the collection is not more wonderful in extent than health. In fact this expression may be applied to all plants in this nursery. The Pitcher-plants are astonishing in variety, size, and numbers.

At the time of my visit the collection of Orchids in bloom in Mr. Bull's nursery was very grand, and as Liliacs of the auratum section were arranged with them the odour was most pleasing. In other houses were thousands of small Orchids, and the demand for these plants must be greatly on the increase.

At a greater distance from London the nurseries of Mr. Charles Turner of Slough, and Messrs. Cannell of Swanley, Kent, should be included in the week's work. The former has high fame for Carnations, and all kinds of choice hardy and florists' flowers, while the establishment of Messrs. Cannell is unique. It has been named "The Home for Flowers," and it really is so. Covent Garden Market must not be left out of the programme, but a few hours from 5 A.M. will suffice. As a rule country gardeners are led to believe that market growers are far in advance in the production of vegetables, and that we have only to visit Covent Garden to get our eyes opened, and they will be opened too, but not in the admiration of the quality. The quantity is certainly astonishing, and this is all that can be said about it. I know many gardeners who would blush to send such Peas, Potatoes, Cauliflowers, Beans, Vegetable Marrows, &c., to the kitchen as those which formed the bulk of the produce in Covent Garden on two market mornings in July last. Plants in pots are well grown, and fruit, especially Grapes, very good.

The large seed shops are also worth visiting, also the market gardens. The manner in which cropping is carried on in those places is very suggestive. Vacant spaces are not tolerated, crop follows crop in rapid succession, and manure is applied unstintingly. This is one of the secrets of successful cultivation in market and private gardens alike.

Apart from purely horticultural subjects there is always something occurring in the neighbourhood of London to interest strangers. In the second week of July the Royal Agricultural Show was held at Reading. Interesting as this show always is, it was doubly so this time, as the celebrated grounds of Messrs. Sutton & Sons are close to Reading, and they offered attractions which few shows excel. Tuberoses, Begonias and Gloxinias were their principal flowers during the royal show week, and those were to be seen in great numbers and of excellent quality. The Gloxinias especially were far in advance of any I have yet seen. Following close upon this came the Wimbledon meeting; and although at first sight this may appear to have no connection with gardening it really has, as no one can visit "the camp" without being brought close to many celebrated gardens about the Common, and the way choice plants and showy flowers are used to decorate the open spaces in front and around many of the tents gives one an excellent idea of temporary flower gardening. This season the part set apart for the Canadians was the most effective. Most of the plants were arranged in different-shaped beds, and the pots were all concealed under a covering of cocoa-nut fibre. In private gardens beds might be formed and material of the kind might be used with advantage in many parts on any special occasion.

I must conclude, as these notes will occupy much of your valuable space, but a hint may yet be given to intending visitors. Do not be afraid to ask questions. At Veitch's, for instance, it may be remarked "What little pots those fine Orchid plants are in!" and the answer is "Yes, those allow us to give them great quantities of water without any danger of stagnation at the root," and it is from being in too large pots that so many Orchids fail to succeed. The compost is important in the cultivation of all plants, and an instance of good plant-growing could never be allowed to pass without asking particularly about this and other favourable conditions. In this way a week in London may not only give pleasant impressions at the time, but much information may be secured which may be useful in years to come.—J. MUIR, *Margam*.

PRIDE OF THE MARKET PEA.

WE have from time to time seen and heard much in favour of Messrs. Carter's fine dwarf Pea Stratagem, but little of its twin rival Pride of the Market. It is questionable if the latter is not the better Pea of the two. It is true the pods are not quite so large as those of Stratagem, but they are large enough and fill well, while the peas are of a deeper green and are sweeter than the other. The plants also bear with greater freedom—in fact Pride of the Market is, in my opinion, the most profitable of dwarf Peas. I had the two sown in one row, 10 yards in length, of each

variety, and while both are undoubtedly good, Pride of the Market bears the palm. Others may have formed a different estimate, but still I am sanguine of not being alone in arriving at the verdict now recorded.—W. P. L.

GARDEN FAVOURITES.

Violet Devoniensis.—This proves a great acquisition, coming into bloom early in July, and becoming more and more floriferous as autumn approaches. Its deep purple and very fragrant flowers have long stalks, which admit of their being made up into large bunches, a few of which mixed with Maréchal Niel Roses make a stand of cut flowers for a sitting-room table that finds favour with everybody. I regard this Violet and the old Russian as quite indispensable for every garden.

Salvia tricolor.—This makes a charming pot plant, not as a dwarf bush, but with two or three shoots left to grow unshortened. It then attains a height of about 4 feet, with foliage of a lively green hue, remarkably handsome, and, including the leafstalk, fully 10 inches long. Each leaf curves gracefully downwards, and has a lateral shoot springing from its axil, imparting to the plant an air of fulness without crowding, which is very pleasing, especially while it is in bloom. Each leading shoot is crowned by a flower spike about 9 inches in length, thickly set with its bright purplish pink flowers, not of a decided self colour, but delicately shading to a lighter tone upon the lower part of the flower, and with white lips. I have not yet tried it in an open border, but believe it assumes a dwarf bushy habit there, which in its way is equally attractive.

Arundo conspicua.—A large plant of this handsome New Zealand Reed had its plumes fully developed early in July. They are fully 10 feet high, but are not so abundant as usual. I had this plant from Messrs. Veitch four years ago, a small healthy plant of the usual size that we receive such things from a nursery, and its drooping foliage now covers a circle 9 feet in diameter, which cannot be an extraordinary size, for it is in ordinary soil and has had no special treatment. A leading place must be given it among our best hardy plants, not only for its intrinsic worth, but for the earliness of its flowering. In proof of its hardiness I may add that it sustained no harm in the cold winters of 1879-80, which proved fatal to a large plant of *A. Donax* growing near it.

Cornus mascula variegata.—Is a perfect picture in miniature during summer, but its delicate foliage is liable to suffer from fluctuations of temperature, and a sudden burst of hot sunshine after dull weather destroys the broad yellow margin of the leaves, but does no harm to the green centres, which remain intact with brown shrivelled edges that are most unsightly. In favourable seasons when the foliage sustains no damage it is in its best from June till autumn, for when the midsummer growth appears clothed with its bright yellow and green foliage the yellow margins of the spring leaves have changed to a pink hue that blends charmingly with the brighter colours. Its slender dwarf growth renders it unfit for a crowded border or shrub bed, but it is precisely one of those pretty little knickknacks that find a suitable home in a cosy nook of a rock bed, and help to render it attractive.

Berberidopsis corallina.—Glad am I to say that these have fully recovered from the baneful effects of the exceedingly cold weather of the two winters preceding the late mild one, both the large plants here being just now in full beauty of foliage and blossom. The flowers are unusually abundant, and although so quiet in tone are so striking as to at once attract attention, and one is repeatedly asked for the name of "that lovely climber." The growth is wonderfully robust, exceeding the bounds assigned it by many yards, and has encroached upon its neighbours, mingling with them in a half-wild manner that is by no means unpleasing. What is the correct colour of the flowers? I have termed it a deep coral, but am told I am wrong, and that rose-pink is the true shade.

Double Arrowhead (Sagittaria sagittifolia flore-pleno).—This lovely aquatic is now in great beauty. I counted fourteen expanded flowers upon one stem a day or two ago, each of them a pure white fleecy ball some 2 inches in diameter growing loosely in tiers upon stout stems rising about 20 inches above the surface of the water among the large green arrowhead foliage. Its culture is very simple. It is an annual, reproducing itself by a bulbous growth, which is found in autumn in the form of a small egg laying in the mud at the bottom of the pond. Half a dozen of the bulbs have only to be thrust into the mud a foot apart any time during winter in about a foot or two of water to produce at this season of the year a group that, for freshness, purity of colour, and much intrinsic beauty, has few equals. Once established it requires no subsequent care other than an annual thinning of the

bulbs after the growth dies in autumn, for if this is neglected the growth becomes crowded and weak.

A few of the tall-growing aquatics tell well among a collection. *Nymphæas*, *Nuphars*, *Villarsias*, and *Aponogetons* are all good, but none of them rise much above the surface of the water, and have rather a tame appearance alone. It is well, therefore, to introduce among them with the Arrowhead a few plants or groups of *Typha*, *Richardia*, *Ranunculus*, *Butomus*, and *Lythrum*. One frequently sees *Lythrum roseum superbum* strongly recommended for ditches and pond margins, and it is so brilliant as to be worthy of a conspicuous place in any moist ground. I have it just now most beautiful mingled with *Typha minima* in a shallow stream; but *L. Salicaria* answers well in a foot of water, and either of them may be lifted with impunity when in full bloom and dropped carefully in any part of a pond that is not over 20 inches deep. *Typha minima* answers best in the moist banks of the stream; planted out in a foot or two of water it becomes so coarse and vigorous as to lose much of its beauty. This is a matter worthy of our best attention, not only in its relation to this particular plant, but as affecting all others worthy of culture. As an illustration I may mention a bold mass of *Calla palustris* clustering cosily at the foot of a vigorous clump of *Iris pseud-acorus*. The *Iris* quite fills the channel of the stream which supplies the aquatic plant pond with water, and the *Calla* spreads outwards from it to a soft semicircular outline just far enough into the pond to fill with its pretty greenery what would otherwise be an unsightly angle.—EDWARD LUCKHURST.

NOTES ON THE BOTANY OF HONG KONG.

THE botanical aspect of Hong Kong is much more interesting than the horticultural aspect. The total number of species enumerated in Benthams "Flora Hongkongensis" is 1056, but the discoveries since that work was published has added nearly 200 additional species, 75 of which are enumerated in Dr. Hance's Supplement to the Flora. The remainder have been described when the species were new, chiefly in the "Journal of Botany." Every year adds something to the already wonderfully rich flora, and, judging from the number of additional species which have been discovered of late in localities which had been well ransacked by botanists, we may expect many more interesting "finds." Recently I have had the pleasure of discovering a new *Otanthura*, which has been named by Dr. Hance *Fordii*; a new *Sonerila*, *Asplenium lunulatum*, and two or three other species which are not yet accurately identified. The chief botanical connections with other countries are with Japan, a few with Australia, and many with Assam, Sikkim, and Nepal, and the Khasia Mountains in eastern Bengal. When the opposite mainland of China becomes better known doubtless such plants as those which are exceedingly rare and only known in Hong Kong will be discovered. Amongst these interesting plants peculiar to Hong Kong are the beautiful *Rhododendron Championi*, *Rhodoleia Championi*, and *Symplocos decora*, and the interesting *Woodwardia Harlandi*; *Ainslæa Walkeri*, several species of *Calamus*, and many others. There are nearly a dozen species of Oaks and several Hollies, some of them ornamental evergreens, but none with spiny leaves like the favourite English species of the genus *Ilex*. Of Ferns there are about a hundred species, and about the same number of Grasses, a large number of which are very common and numerous in individuals, besides being extremely beautiful.

To return to the Oaks, I might mention that the acorns of one, *Quercus cornea*, are edible, and when once extracted from their shell, which is extremely hard and about a quarter of an inch thick, are very sweet and palatable.

Hong Kong furnishes but few edible plants amongst its numerous indigenous ones. The fruit of the Myrtaceous *Rhodomyrtus tomentosus* is tolerably good and enjoyed by the natives; it is hunted for like the Blackberries in England, chiefly by the boys. Then, again, the fruit of an Anonaceous plant called *Uvaria purpurea*, although it contains many seeds, is by no means to be despised, and has sometimes supplied me with refreshment when I have been botanising in the woods on the south side of the island. The bunch of fruit looks more like a small bunch of Bananas than anything else I can think of.

A very large number of plants are used in medicine by Chinese, herbalists' shops abounding in every part of the town. Perhaps the most sought for is China-root, *Smilax* sp. A great number of plants are used in fever cases and other diseases, but in a great many instances with very doubtful results.

Besides medicinal plants Hong Kong yields but little for economical purposes if we except the grass growing on the hills, chiefly *Spodiopogon obliquevalvis*, which, when full grown, is industriously cut by women and used for fuel. The hills have

a very treeless appearance in most places, which defect, however, is now rapidly and happily being overcome by the large plantations annually made. I have just completed the plan of forest operations for 1881, which will enable us to plant upwards of 800,000 trees, covering an area of about six hundred acres. The tree chiefly used for this purpose is *Pinus sinensis*, which grows rapidly and stands exposure well. For the great strides in afforestation in Hong Kong, we have more particularly to thank the present Governor, Sir John Pope Hennessy, who, when he arrived here, was so enlightened as to see at once the great importance of tree-planting, and to obtain the necessary funds for carrying out an effective scheme for that object.—C. FORD, *Botanic Gardens, Hong Kong.*

TWO NATIVE GEMS.

THOSE who are fond of native plants should not neglect to cultivate two of the neatest and prettiest, which I mention together, because the same conditions suit both, and because in North Wales they often grow mixed up in the same sod. The names are *Anagallis tenella* (Bog Pimpernel) and *Campanula hederacea* (Ivy-leaved Bellflower). On leaving Conway station in the direction of Bangor you pass two or three hundred acres of level uncultivated ground, lying between the railway and the sea, known as Conway Marsh. The soil is sea sand mixed with fine humus, and its very small elevation above the sea level secures constant moisture rising from the subsoil, though water never stands on the surface. Over a great part of this the ground is quite full of these two plants growing amongst the fine grass. They flower together through the month of July. Unless examined the flowers are so similar in size and form that they might be taken for different colours of the same flower. The colour of the Pimpernel varies from clear rose to pinkish white; that of the Campanula is more constant, being very pale blue. The Bog Pimpernel is found in most parts of England, but I have nowhere seen it so abundant as it is in all suitable spots in North Wales; and I lately crossed some old pasture fields in the neighbourhood of Holyhead where it literally covered the ground in such a way as to give the prevailing colour to the surface. These fields could not be called boggy, being apparently dry, and were situated on a hill side: but probably the subsoil contained water at a small depth. The Ivy-leaved Campanula is more local, and is often found in drier spots than the Pimpernel; but it likes a moist climate, and is tolerably common in Wales and the west of England. I have seen and will mention several ways of cultivating these plants, and I have had both of them growing in my garden for two or three years. A plan which suggests itself to the inexperienced—to dig up a sod containing roots of both the plants and transfer it to a moist part of the garden—generally fails. The fine grass becomes coarse, hidden weeds spring up, and the delicate plants are hopelessly smothered. It is, however, difficult to extricate the fine roots and delicate hair-like stems of the Campanula; the operation requires clever fingers and patience. When it has been performed the plants should be carefully planted in small pots of sandy peat soil and kept under a handglass, and well watered. When you see that they are growing choose a moist sunny spot. Fine sandy soil which neither cakes nor dries up is indispensable. The edge of a tank, where the *Anagallis* is grown at Kew, is a good place; the base of a rockery where watering is not neglected is also good; but if there is an exposed bog bed in the garden, that is the best of all. Lay a few stones about the size of half bricks, and raise the surface a few inches with riddled peat soil and sand, and both plants will grow luxuriantly in it, and will make a show which you may safely take your most fastidious gardening friends to see. I found the Campanula hard to establish, but when once that is accomplished it lasts. Both plants may be grown in pots standing in a tub of water to within 3 inches of the rim. I have seen the *Anagallis* doing well in this way at Kew, but I think the Campanula is not grown there.—C. WOLLEY DOD.

PHALÆNOPSIS VIOLACEA.

THOUGH one of the small-flowered species of this beautiful genus *P. violacea* possesses considerable attractions for culture in baskets, for its violet purple-tinted flowers are produced very freely, the neat bright green leaves and dwarf habit also being additional recommendations. In shape and size the flowers are rather suggestive of *P. Luddemanniana*, though they have not the distinctive markings of that species, the sepals and petals being oval in form, whitish towards the tips, but deep violet purple at the base, the column being of a similar tint. They are borne several together on short racemes, but the latter are produced so

freely that the plant has a very pleasing appearance when grown in a basket suspended from the roof of the Orchid house. It was introduced about twenty years ago, but was only certificated last year when shown by Messrs. J. Veitch & Sons of Chelsea at the meeting of the Royal Horticultural Society, June 28th. A very distinct and beautiful variety was exhibited at the last meeting of the above Society, August 8th, by Mr. Ballantine, gardener to Baron Schröder, The Dell, Egham. This was named *P. violacea Schroederi*, and the Floral Committee awarded a first-class certificate for it. It is distinguished from the typical form by the

flowers being of a uniform bright purplish tint, the petals not being whitish at the points as in the species. Another pretty variety, *P. v. Murtoniana*, is also known, a yellow hue being largely present in the blooms.

ANDROSACES.

THIS is a charming little group of Alpine flowers belonging to the *Primula* family, the floral structure being very similar to that of the genus *Primula*, but differs in the corolla mouth, which



Fig. 26.—*PHALENOPSIS VIOLACEA*.

is very much contracted in *Androsace*. There is a number of species, especially if we include the sub-genus *Aretia*. Regardless of them, however, the species of the genus proper are numerous, inhabiting the mountainous regions of Europe, more particularly extending from Siberia to the Pyrenees, while a few occur in the upper parts of the Himalayas; indeed, there may be several indigenous to the latter part yet undiscovered, as the flora of those regions is by no means fully worked out. There is nothing in these plants conspicuously attractive, but their very simplicity is quite sufficient to interest all lovers of Alpine plants. *A. sarmentosa* is certainly pretty, and it has been received well by the floricultural world generally, but the other species are only known

to specialists, which are comparatively few in this country. The reasons for this are manifold, the primary one being, perhaps, that there has not been sufficient care bestowed upon them under cultivation, the result of which has been frequent loss. In the cultivation of Alpine plants, it must be confessed we are far in the rear of our continental brethren, and I do not forget that their climate generally is more conducive to the well-being of such plants, and amongst English gardeners as a whole there is a great lack of knowledge respecting them. They are most studiously cultivated by many on the continent absolutely for the love of them, and, in my opinion, the absence of such enthusiasm is the chief cause why so many of our Alpines have been,

and are being lost. More intelligent work is needed among these plants than has been exercised during the last half century.

As regards the cultivation of Androsaces, they require the rock garden as a home, and to be planted in well-drained partially shaded positions, so as not to receive sunlight during the hottest part of the day, with a good depth of soil to root into. The following compost I have found suits them when suitably prepared—good turfy loam, leaf soil, sand, and broken limestone in equal parts, the latter broken up finely and well mixed with the other parts. When planting press the soil firmly about the plants and cover the surface round about them with small nodules and fragments of limestone to keep the roots cool and moist, as that will greatly prevent evaporation. They may be fully exposed during all the year except the winter months, when they should receive a slight protection, not necessarily against the cold, which they can endure with impunity, but against superfluous moisture when at rest, which is positively injurious, causing decay, especially in the case of the woolly varieties. This can be effected by a bellglass tilted so that there is free access of air, or a sheet of glass so placed that the rain can pass off. This answers a similar purpose as the coating of snow they receive under natural circumstances. It is necessary to keep a sharp look-out for slugs, as they are very partial to them, and in making a good meal would greatly reduce the size of a good established plant. The different species are increased in various ways. Some can readily be divided, which should be done carefully; and in the case of those kinds which emit runners, the latter should be pegged down, when they will readily root, after which they may be separated from the parent. Several kinds are easily increased by cuttings, which should be taken when the wood is ripe, inserted in well-drained pots of very sandy soil, and placed in a cold frame in a shady position, watering carefully. They are slow in striking, but there is no difficulty in the matter. They are also easily raised from seed, which should be sown as soon as ripe, as the longer it is kept the slower it is in germination, like most of the Primulaceous seeds. It is best to raise the seed in pots filled with carefully prepared soil, and place the pots in a cold frame or cool greenhouse, standing them upon a cool bottom. Cover the seed lightly, and cover the top of the pots with a suitable pane of glass, so as to prevent evaporation and reduce to a minimum the necessity of watering. Let the young plants remain in the seed pots until they are well established rather than pricking them off young. Finally, plant them out on the rockery in batches so as to form a clump quickly.

Old cultivators of these flowers grew them in pots, when they were given the protection of a frame during the winter, or were covered with such protecting material as bracken fronds. This plan is to be encouraged, especially where it is not practicable for want of material with which to construct a rockery, and they are easily managed this way. This method of culture is largely practised on the continent, where, however, they have not only climatal advantage, but cultivators are frequently collectors. Many young gardeners enjoy their short holiday with an alpine excursion in search of their favourites, which are taken home and carefully cultivated in pots. A few of the best species are briefly described below, and it is difficult to find many others in cultivation with us, although several others are offered by some alpine plant-cultivators in Austria and other parts of southern Europe.

A. earnea.—Very free-growing; leaves in flattish rosettes, linear, smooth; flower stems 4 to 6 inches high, forked; flowers bright pink. It flowers very early in the year, being one of the first flowers to open, and is extremely pretty. Very gritty soil is most suitable for it. It is a native of the Swiss Alps, and was introduced into this country more than a century ago, and was cultivated by Mr. Miller in the Chelsea Botanic Gardens.

A. Chamæjasme.—A very small species, forming under favourable conditions dense cushions. Leaves less than an inch long, linear lanceolate, hairy, in roundish rosettes; scape 1 to 2 inches high, supporting a small umbel of white flowers about one-quarter of an inch across with yellow eyes, or rarely of a light pink colour. It is a little gem, very free-flowering, and the flowers last some time, appearing in June. It is found on the mountains of southern Europe generally, where it forms very large masses, and was introduced about the same time as the last.

A. ciliata.—A small tufted species, with light green, linear, ciliated leaves; flowers in tiny umbels, very freely produced, bright pink with pale yellow eyes. A very close and free-growing kind, enjoying a damp situation. Native of Austria, flowering in May and June.

A. glacialis.—A very dwarf species with sub-trailing branches, slender, and rather fleshy; leaves linear, blunt, smooth, 3 to 4 lines long; flowers produced at the ends of the branches, almost sessile, pink, about 4 lines across. A very curious little species, somewhat resembling some of the Stonecrops. It enjoys a well-drained posi-

tion, with a free admixture of limestone crumbs, where it thrives well. Native of the Swiss and Austrian Alps.

A. lactea.—A free-growing species with flattened rosettes; leaves 1 to 2 inches long, linear acute, smooth, light green; flower stems 4 to 9 inches high, divided at the top, bearing several flowers about 4 lines across, pure white. This requires a dry position during the winter, as it is very liable to decay without some covering. If that is afforded it is perfectly safe, multiplying itself by runners, which should be carefully pegged down. It flowers in June and July. Native of the Austrian mountains, and appears to have been cultivated by Miller.

A. Laggeri.—This is also a tufted species, very dwarf; branches sprouting, thickly covered with small subulate leaves 3 to 4 lines long, rather prickly; umbels near the extremities of the branches one to three-flowered; flowers bright pink with yellow centre, the corolla limb five-lobed. This is a little gem, and does very freely in a moist position in plenty of leaf soil and sand. I have also known it to thrive well in a small bog bed, and well remember seeing a splendid little patch of it in such a bed in Mr. Whitehead's garden at Bickley. It flowers in April and May, and comes from southern Europe.

A. lanuginosa.—A very distinct trailing species, with long reddish branches covered with white silky hairs; leaves ovate lanceolate, 1 inch or more long, thickly covered with silvery down; umbels axillary, copiously produced, many-flowered; flowers 3 to 4 lines across, white shaded with lilac, with conspicuous yellow centres. This is a most desirable plant for the rockery, the flower umbels blending so charmingly with the silvery-grey foliage, while the growth is so disposed as to render it a capital rock plant, and it should be so arranged it can ramble over the ledges of the stones. It enjoys thorough drainage in very free soil, and the cuttings will root freely if treated carefully in a cold frame. It flowers nearly all the summer, and is a native of Asia Minor.

A. obtusifolia.—A dwarf dense-growing kind, with roundish rosettes of linear, acute, very hairy leaves, resembling some of the Drabas, $\frac{1}{2}$ to 1 inch long; flowers in umbels, pink, 3 lines across. This is perhaps not more than a biennial, as it dies away very frequently; but it seeds freely, and is easily raised, flowering in April and May. Southern Europe.

A. pyrenaica.—A very dwarf tufted species, resembling some of the dwarf Saxifragas of the aretioides section; branches not more than 1 inch high, erect, covered with small narrow blunt leaves; flowers axillary, usually solitary, pink, very small, but freely produced. It requires a well-drained fissure in loam and coarse sand, surrounding it with pieces of limestone. It is not so showy as the others, but it is very distinct, and should be grown, coming from the Pyrenees.

A. sarmentosa.—A very handsome species from the Himalayas of comparatively recent introduction, forming large compact rosettes; leaves 2 to 3 inches long, strap-shaped, hairy, falling away at the end of summer, leaving dense woolly rosettes; flower stems 6 to 9 inches high, umbellate, with several flowers 5 to 6 lines across, bright rosy-pink with white centres. This is a very free-growing kind, each rosette producing several runners, which should be pegged down, when a little colony may soon be formed, and it is a very handsome plant, covering in a comparatively short time a good patch, flowering in June and July, or even later. I have known plants to vary much in the time of flowering.

A. septentrionalis.—A very free-growing annual, or, at the most, biennial species, none the less, however, worthy of cultivation. Leaves linear lanceolate, distantly serrated, in flattish rosettes; flower stems 6 inches high, forked at the top, several-flowered; flowers pure white, 4 lines across, very pretty. It flowers as early as March, frequently when the ground is covered with snow, continuing in a mass till the end of May, when it seeds freely, which falls to the soil and readily germinates, and a batch of young plants take the place of the old ones, so there is little trouble with it, and it is charming during the long blooming period. Native of Russia.

A. villosa.—A very compact-growing dwarf kind; leaves in close roundish rosettes $\frac{1}{2}$ to $\frac{3}{4}$ of an inch long, linear, acute, covered with white silky hairs; scape 1 to 2 inches high, with small umbels of flowers, white with yellow eyes, or light pink, very freely produced. This is a beautiful little plant in any state, enjoying a soil composed of crushed limestone and sand, with a little loam added, when it roots freely, the rosettes producing a number of tiny runners, which freely establish themselves. I have also taken these runners off and rooted them in a cold frame, and planted a colony of them on the rockery, where they thrived admirably. Native of the Pyrenees, flowering here during May and June.—N.

PASSIFLORA CERULEA IN IRELAND.—For the past month this beautiful Passion-flower has been blooming here against a southern

wall. I thought I had lost it in the severe winter of 1878, and until this year had not sufficiently recovered to bloom again. Hearing it described as perfectly hardy I did not in any way protect it, but shall do so with bracken or hay in future. This will prevent the stems being killed. To bloom continuously during the summer months occasional supplies of liquid manure, full exposure, and severe pruning and thinning must be resorted to.—W. J. M., *Clonmel*.

THE CATSHEAD APPLE.

UNDER the above name we have an old Apple tree that never fails to bear good crops of very large fruit. We have planted many modern varieties during the last fifteen years, but not one of them is so really useful as this. The fruit is of excellent quality when cooked—is, indeed, one of our best kitchen Apples for winter use. A local nurseryman has told us the proper name of our Apple is the Costard, but it has been known as the Catshead by three generations of the family. Whatever its true name may be, it is one of the best of orchard Apples, and ought not to be lost.—NORTH LINCOLN.

[The Catshead is one of our oldest and best culinary Apples. It is in use from October to January. The tree is a strong and vigorous grower, and attains the largest size; and though not an abundant bearer during the early period of its growth, it is much more productive as it becomes aged. In the Horticultural Society's Catalogue of Fruits, and also in Lindley's "Guide to the Orchard," this is made synonymous with the Costard of Ray, which is undoubtedly an error, the Costard being a distinct variety. The Catshead was always highly esteemed for its great size. Phillips, in his poem on Cyder, says:—

— "Why should we sing the Thrift,
Codling or Pomroy, or of pimpled coat
The Russet, or the *Cat's-Head's* weighty orb,
Enormous in its growth, for various use
Tho' these are meet, tho' after full repast,
Are oft requir'd, and crown the rich dessert."

In Ellis's "Modern Husbandman" he says the Catshead is "a very useful Apple to the farmer, because one of them pared and wrapped up in dough serves with little trouble for making an Apple dumpling, so much in request with the Kentish farmer for being part of a ready meal that in the cheapest manner satiates the keen appetite of the hungry ploughman both at home and in the fields, and, therefore, has now got into such reputation in Hertfordshire and some other counties, that it is become the most common food with a piece of bacon or pickle pork for families."]

ST. VINCENT'S, GRANTHAM.

TRAVELLING a short time ago on the main line between York and London I determined, as I neared Grantham, to visit the above establishment, which is easily recognised by the spire that rises from the mansion. It is the home of Mrs. R. Hornsby, widow of the late R. Hornsby, Esq., senior partner of the extensive firm which has long been famous for the various agricultural implements made by them. These, however, have not been the means of bringing the St. Vincent gardens prominently before the horticultural public, but the excellent exhibits staged by Mr. Mann at the London and other provincial exhibitions during recent years. I have had several opportunities of seeing his successful exhibits, and this tempted me to break my journey and again visit the gardens that I had seen, over eight years ago, prior to Mr. Mann taking charge. The improvements since then have been considerable, and the trees and shrubs which were then comparatively young have grown with such rapidity and so many glass structures have been erected that I could scarcely recognise it as the St. Vincent's once familiar to me.

The garden is situated on the side of a hill, and much excavating has been necessary where the glass houses have been erected. The drive is of moderate length, gradually curving and rising from the entrance to the mansion. To the front on each side are grand pyramidal specimens of Golden Yews, varying from 6 to 8 feet in height, and every plant is well proportioned. At intervals Thuja elegantissima, about the same height, are like pillars of gold. These are also freely employed about the grounds, and evidently do remarkably well, for I do not remember ever seeing this beautiful Conifer in better condition. In the background is a row of young standard Limes with beautiful round heads: the trees are planted sufficiently far apart to develop naturally. Between these, and rising out of the above-named shrubs, are Irish Yews, which show to advantage by the light young foliage of the Limes and the pillars of gold surrounding them. I have not seen any planting more effective, and have always regarded the Irish Yew as only fit for churchyards as it is seen in many gardens; but as employed at St. Vincent's, with taste and judgment, nothing could have been more appropriate. In every instance the shrubs have been planted a good distance apart, or have been timely transplanted to allow each individual specimen room to develop without encroaching upon its neighbour. In few places is the same wise plan carried out so well.

Although each specimen has plenty of room there appears no thinness in the borders, for the spaces between them are occupied with many hardy flowering plants. In such places herbaceous plants are shown to advantage, and not only afford abundance of flowers for cutting, but brighten the shrubbery borders. The most striking in flower were quantities of Intermediate Stocks of various colours, which were one mass of bloom, grand for borders as well as pots during the spring. Good patches of Pansies, Narcissus poeticus and its pure white double form albus plenus, were conspicuous, and should be grown in every garden where quantities of cut flowers are in request. Iberis in large clumps were showy, and Pyrethrums, Irises, Paeonies, and Aquilegias. These will be followed by Phloxes, Delphiniums, and many others.

Leaving the drive before reaching the mansion we traverse what is known as the Serpentine Walk, which curves through a large belt of choice Conifers and ornamental trees. On each side of this and other walks are grand Hollies—standards of the weeping kinds, with their branches sweeping the ground, and in the best of health and condition. Many silver, golden, and green varieties are seen in various parts of the grounds, and in every instance are perfect pyramids. The quantity of bloom many of them were producing rendered them attractive at the time of my visit; this applies to the former as well as the latter, the silver kinds being so laden with bloom that they were perfectly white, and added materially to the beauty of the plants. I also noticed a fine young specimen of the Weeping Wellingtonia doing well, and in its true character. Large patches of Ajuga reptans purpurea were conspicuous with numerous spikes of bright blue flowers, the plants succeeding best when undisturbed. The Serpentine Walk leads into another walk running almost parallel with the drive, and by which the mansion and flower garden is reached, the latter lying in close proximity to the former on the south side, with a fountain in the centre and the flower beds cut out in the turf. Although Mr. Mann admires and makes provision for hardy plants he also appreciates summer bedding, and I am informed he does it well.

The glass is extensive, and, as already noted, much excavating has been necessary before building the vineries and Peach houses, for the ground behind is almost level with the tops of the houses. The first and early vinery is especially noteworthy on account of some experiments conducted by Mr. Mann, and which may prove of interest to many readers. The Vines are sixteen years old, and consist of Black Hamburgs and one Royal Vineyard. The former was ripe towards the end of March, and were well finished; while the latter was far from ripe, but had set as well as would be expected of Foster's Seedling. From this Royal Vineyard two canes have been laid horizontally, Black Hamburgs being worked upon it; and two or three canes have extended three parts of the way up the rafters, and are carrying large bunches and bold foliage. The Grapes on these marched Vines were commencing colouring nearly two months later than those on their own roots and in the same house, and subject to the same treatment. The object to be attained by using the Royal Vineyard as a stock was, if possible, to produce the Black Hamburg in good condition until March instead of January. If grown in a late house this useful variety will not keep much after the latter date, but by working it on the stock alluded to there appears every chance of Mr. Mann succeeding in his object. It is readily seen from the experiment in the early house that this stock has a great influence in keeping the Black Hamburg late. This is to be further tested, as a number of Royal Vineyard stocks are in readiness for working, and a house is to be planted with them.

The extension system of Vine-growing is practised in the next house, which is being filled with Alnwick Seedling that has been planted three years, and has seven canes nearly to the top of the house, with others extending horizontally, from which the remaining canes required will be taken. In this house I noticed some Plum trees in tubs bearing fruit fast approaching ripeness. The next is a large vinery with about twenty-nine canes in it, some Vines with two and others three canes; they have been planted five years, and consist of Alicantes, Muscat of Alexandria, Gros Colman, Gros Guillaume, Black Morocco, and Golden Queen, a great favourite here. Waltham Cross is another variety much appreciated as a late Grape, and produces long tapering bunches from the young wood, but is very shy from the old spurs. To grow this Grape well no doubt the long-rod principle would be most suitable. The border is partitioned into as many compartments as there are Vines by 4½-inch brick walls, so that any one Vine can be taken out without disturbing the roots of its neighbours. Where a number of varieties are grown in one house this is an admirable plan, as any that may require it can be kept drier at the roots while ripening. Dryness at the roots is found here to be the secret of success with Golden Queen, and perhaps Mr. Mann's success with Black Morocco may be attributed to the same cause, as it sets well and the fruits do not crack. These Vines had been grown up to the time of my visit without fire heat, and were very healthy.

Another house of similar length has been recently planted. The old Vines planted previous to Mr. Mann's charge were never good, the fruit always shanking badly. The border was 4 feet deep, and the roots had passed into the clay. The new border is made on the old one, and provision is made to keep the roots from unsuitable material. Black Hamburgs fill the next compartment; they had been planted five years and were carrying a good crop of fair-sized

bunches, which had just commenced colouring. This border is only 18 inches deep, and has been made on the gradual system. The next and last vinery that I shall notice is filled with Muscats, which are carrying a good crop of well-set bunches. These Vines used to shank from the cause above alluded to, but have been lifted and their roots brought nearer the surface. One of the Vines of Muscat of Alexandria has been worked on Muscat Trovère, and not only grows more luxuriantly than the rest, but produces larger bunches and berries, this difference being readily observed in their present stage. Another is on the Madresfield Court, but the growth is rather weak, and no perceptible difference can be seen in the fruit either now or when ripe from the fruit of those on their own roots.

Four or five houses are devoted to the cultivation of Peaches and Nectarines. The trees throughout are clean, healthy, and are carrying good crops of fruit. The young shoots are thinly trained, so as to admit abundance of light and air amongst the branches, which is the secret of having thoroughly ripened wood, plump buds, and fine fruit the following season, other conditions being favourable. The varieties principally grown are Peaches—Royal George, Barrington, and Violette Hâtive. Nectarines—Elruge, Victoria, Violette Hâtive, and Stanwick: the last-named cracks badly in some places, but shows none of its faults at St. Vincent's.

Melons are grown in several useful span-roofed structures, and Mann's Hybrid Green-flesh is seen true. It is a handsome fruit, round, nets well, and may be termed a small Melon. The one that attracted my attention most is a seedling named Sir G. Wolseley, and which if I remember rightly was exhibited at South Kensington last year. It was growing by the side of Eastnor Castle, Read's Scarlet-flesh, Hero of Lockinge, William Tillery, and others, all having been raised and planted at the same time. The fruits of the last-named had commenced swelling, while the seedling would have its fruit fully ripe in three weeks from the time of my visit. This Melon is round, of small size, nets splendidly, and from all appearance is a good early variety. The Melons are planted closely, and have about two or three fruits each on the first laterals.

Plants are grown as well as fruit, but not on such an extensive scale, being principally in small pots, and of a suitable size for decorative purposes. Ferns are in special request, and a large house is filled with them as well as a rockwork fernery, with the Ferns planted out amongst the rocks and round small pools of water. In one of the plant houses I noticed a new Coleus, a sport from Magic but much superior to that variety. It has light yellow leaves, which possess a transparency which will give it an effective appearance by gaslight. Round the stem and at the axils of the leaves are deep crimson markings, which render it the more effective.

In thanking Mr. Mann for his kindness, it is only fair to say the gardens were in good order, and cleanliness prevailed everywhere.—VISITOR.

THE INFLUENCE OF FORESTS UPON CLIMATE.

THE following remarks upon the above subject by Dr. R. Schomburgk are appended to his report of the Adelaide Botanic Garden and Government Plantations in South Australia for 1881.

Whether or not forests are of importance to climate is a question pretty freely ventilated of late by science; but how important they are in the household of Nature, and how closely connected with them is civilisation, I shall endeavour to prove. The green leaves and young branches of trees derive a great deal from the atmosphere by binding the carbon of the carbonic acid for the purpose of producing woody substance, amylo, fibre, &c. Likewise the soil gets the benefit by the dropping of the leaves, which, decomposing, return to it partially the material taken out of the ground by the roots. But what is equally important, the leaves also cover the surface when decaying with a rich layer of humus, the shadows of the trees keep the ground moist, so a constant decomposition takes place. Now we know that water is necessary for the existence of plants, for without water no diffusion—without diffusion, no vitality. If on one side the forests absorb a great deal of water out of the atmosphere, they also on the other side exhale humidity on a large scale. As a rule, humidity surrounds them, rain falls, and dew. The forests attract and draw down the rain clouds, which benefit themselves and likewise the neighbouring agricultural land. We therefore, as a consequence, always find good agricultural land near forests. Without doubt we are all acquainted of the fact that plants are not only nourished by their roots but also by their leaves, which are the lungs, and by their inhaling and exhaling purify the air in a great measure. It is perfectly understood that dew is nothing else but a deposit of mist or vapour on the surface of the earth, which can only be generated by having been exhaled or evaporated from the surface of the earth: but the dry sand and naked rock cannot exhale any humidity, therefore dew very seldom falls on them, and only in consequence of attraction by a neighbouring forest. The forest itself, presenting a very large surface for evaporation, returns the loss of the soil in the shape of a refreshing dew, which falls on it in abundance. If we find that very little dew falls on the soil of a very dense forest, the reason is the rays of the sun cannot penetrate deep enough and convey heat thither, consequently very little evaporation can take place and produce radiation of heat.

It is perfectly well known that most of the rivers spring from wooded mountains. The forests conserve the water of a country,

and thus nourish the rivers and springs. In a desert the rivers generally dry up. All those magnificent and powerful rivers of North America spring from primitive mountainous forests; but I doubt if they will continue to discharge the same quantities of water into the sea in the future, when their mother forests are gone. We already hear that the Mississippi is getting perceptibly lower since the last decennium. We also know that when during the winter, when snow and ice melt, great bodies of water suddenly gather in the mountains, and come rushing down with disastrous effect. But even here we perceive a great difference in the manner the waters are drained off. For instance, if such a stream springs from a dense forest a great deal of ice, snow, and water, are retained by the layer of humus acting like a sponge, and consequently the water is drained off gently and with much less danger. But when once the forests of a country are gone there is nothing to check the wild impulse of the waters, and very destructive inundations take place. With reference to this I wish to point out, as one instance only, the fearful inundations caused every year by the Rhone in France.

No doubt some countries at the present time bearing the character of a hopeless desert were always so—for instance, the Sahara; but other countries now in a similar plight were formerly in a different condition. All those vast and almost endless savannahs or plains and prairies of Australand, South Asia, were once heavily timbered; Diodorus of Sicily, at least, mentions the existence of immense forests destroyed by fire. According to Cæsar and other Latin authors, Germany was covered with immense forests; and according to Herodotus and Thucydides the same was the same with Greece, Italy, Spain, France, and England. If we believe in the testimony of Diodorus, the forests of Spain were devastated to a large extent. We know that this country, when subjugated by the Romans, was covered with large forests, especially its southern provinces; but at the present time only her coast retains the forests, and the interior presents the aspect of a vast plain covered with Heath, Lavender, and Rosemary. The forests of the Peloponnesus were burnt down by Ali Pasha, and in consequence there came famine and drought. Likewise a Russian general, in modern times, rendered his name infamous for ever by burning and destroying wholesale the forests of the Caucasus for the purpose of routing out and starving the brave Tcherkessians. The name of the man is Dibitsch Balkansky. Since the destruction of these forests the climate has entirely changed; the country has become barren, droughts and famine set in. In the islands of Mauritius, Jamaica, and the Azores, in the two former, for the purpose of extending the sugar cultivation, where the forests have been cut down, so that some parts of these islands are now totally denuded of trees, the results are felt most alarmingly. The rain has become less every year; springs and rivulets which before flowed uninterruptedly have now ceased to flow. The respective governments of those islands, convinced of the injury done to the country, have taken steps to replant the forests; especially in Mauritius the replanting has begun in full earnest, and our Gum trees are partly used for the purpose.

If anyone still feels inclined to doubt the influence of forests on the climate of a country I beg to give several instances of modern times. The Delta of Egypt, well known for its dry climate after the destruction of its forests, Olive, and other plantations, had about six rainy days every year on an average; but since so many millions of useful trees have again been planted the rainy days have increased to forty days annually. It is also mentioned that the Viceroy, Mehemet Ali, had planted on the Delta twenty millions of trees. These results are confirmed by renowned travellers in Egypt, but especially by Mons. Pouchet. Many millions of trees have been planted in the barren and swampy districts of France, also thousands of acres of the desert of Algiers have been transformed into forests with trees suitable to the climate, and with surprising results. By the last accounts these plantations, especially of the Australian species, have already reached the height of 30 to 40 feet, and with their rapid growth a great change of the climate is observable, and twice more rain and dew has fallen in the neighbourhood of these forests than before. More than sixteen geographical square miles of the swampy and unhealthy country along the coast of the Bay of Biscay, in the Department of Lands, where swamp fever prevailed, have been planted with millions of trees, especially the Cork Oak and Swamp Pine (*Pinus maritima*), with a surprising beneficial result. Not alone that the trees have drained the land, but have changed it into a healthy country with fine forests.

In 1856 Messrs. Bequerel (father and son) in France published a series of observations on the importance of forests on climate, and the great influence they have in regard to rain and temperature, and showed at the same time the injurious effects on the climate by cutting down the forests. In consequence, to test those observations, the French Government ordered a series of meteorological observations in the neighbourhood of forests and also in plains denuded of trees to be made by the Forest Academy at Nancy. These observations were read some time ago before the Academy of Science at Paris, and the result showed that during the time the investigations had been made one-quarter more rain fell annually in the neighbourhood of forests than in plains denuded of trees. It is further stated, in regard to the temperature near forests, "The forest effects the same equal temperature as the sea does along the coast, and that a great contrast in this respect was found in the temperature of plains." Since Messrs. Bequerel's, most important observations have been

made in France by Messrs. L. Fautrat and A. Sartiaux, which were continued over a period of three years in the forests of Hallate, having an extent of surface of 5000 hectares. It is an established fact that of the rain which falls over a normal forest only about half of the quantity reaches the ground, the other parts remaining on the leaves, branches, and trunks of the trees. Mr. Fautrat, therefore, erected a platform which reached 2 metres higher above the tops of an Oak and Beech forest of twenty-six years standing. The following meteorological instruments were fixed on the platform—viz., rain gauge, psychrometer, maximum and minimum thermometer, and an evaporimeter, to learn the exact quantity of rain falling over the forest, the degree of the moisture, the temperature of the air, and the evaporation of the water. Three hundred metres from the forest, on a plain denuded of trees, another platform of the same height was erected, with the same instruments. The observations of the first six months, from February to July, the rain which fell over the forest was 7.578 in., and over the plain (300 metres distant from the forest) it was 6.956 in., or 0.610 in. less than that which fell over the forest. The hygrometrical observations proved that above the tops of the trees a large portion of vapour exists, which does not appear on the plain. From the 1st of March till the 1st of December the average of the damp atmosphere was 66°, and over the plain 61.72°. An interesting fact was observed—that the highest degree of vapour in the forest exists during the spring, when the young growth of the trees appears, and when the trees exhale the greatest quantity of carbon. These vapours are beneficial for the cultivated lands surrounding the forest; they spread over the neighbouring ground, and fall during night as a fertilising dew. Mr. Fautrat, after his observations in the Hallate forest, made similar observations in the Pine forest of Ermensville, to ascertain if a Pine forest has the same condensing property as a deciduous forest. Similar platforms like those in the forest of Hallate and the same meteorological instruments were used. The other was erected in a treeless sandy plain near by. The result of these observations during fourteen months was—viz., the fall of rain over the Pine forest was 23.098 in., and in the plain 29.832 in. Mr. Fautrat also came to the conclusion that the Pine forests possess still a greater condensation influence than the deciduous forests. The hygrometrical observations showed that the average humidity was 63°, and that of the plain 53°; but the evaporation of the Pine forest is much quicker than that of another forest.

A GOOD TOWN PLANT.

I HAVE been trying several plants in my smoke-enveloped garden, but the one that thrives the best is, I am told, a Veronica.



Fig. 27.—*Veronica spicata*.

It has numberless spikes of blue flowers 18 inches long, several of them branching freely. The stems are 3 feet high, the leaves somewhat like those of Willows, and rather deeply toothed. I have several plants which have afforded an abundance of flowers for months, and the spikes are most agreeable for arranging in vases in rooms. One plant produces white flowers, which are great favourites with my family. I first saw the plants growing in a London, not a suburban garden, quite surrounded by buildings, and nearly always under a cloud of smoke, and they seemed as if they liked it rather than otherwise. They certainly grow with great freedom, in this respect quite equalling Chrysanthemums as town flowers. I mention the circumstance for the benefit of those who attempt flower-growing under difficulties, and am disposed to venture the assertion that where scarcely

anything else will grow this free, hardy, and useful plant will flourish.—A CITY MAN.

[The plant is no doubt *Veronica spicata*, of which we submit a sketch, and we know it grows freely in town gardens.]

VEGETATION IN CEYLON AND INDIA.

A WELL-KNOWN continental naturalist, Professor Haeckel, has recently returned from an expedition to Ceylon and India, and has published a series of letters in the *Deutsche Rundschau*, recounting the chief features of interest he observed there; and as he gives some notes upon the vegetation, an abstract of this portion, recently published in *Nature*, may be interesting to some readers of the Journal.

During one portion of his stay he visited the Island of Elephanta, and after describing its interesting rock temple, he goes on to mention the impression made on him by the tropical flora:—

"In another way this excursion to Elephanta was of the greatest interest and never to be forgotten, for this day, the 9th of November, was the first on which I saw the magic of the tropic flora in all the freedom of Nature. I had occupied the afternoon of the previous day in visiting the Victoria Garden, which is a fine though not very carefully cultivated botanical garden. It cannot indeed be compared in richness and arrangement with other botanical gardens in India, but still it was there that I saw for the first time a number of the most beautiful and grandest tropical growths. But my delight was infinitely greater and more vivid when in Elephanta I saw the most important and characteristic Indian plants growing wild in an unartificial state, with a luxuriance impossible to a limited garden. There clinging creepers and climbing Ferns clothed the mighty trunks of the Teak trees; there the noble Cocoa Nut Palm bends its slender trunk and splendid feathery glittering crown above the sea-shore, which is bordered by bushes of the Pandanus, and secured by walls of Mangroves rooted in the water; there big parasite Figs, *Convolvulus*, and other climbing plants, with large gay flowers, run up the straight black stems of the mighty Palmyra Palms, the proud summits of which, with their fan-shaped leaves, are also covered with the climbing flowers. And there rise noble examples of the sacred Banyan; their mighty trunks are divided into an actual network of great roots, while from among the dark green leaves of the stout branches above hangs a mass of air roots, many of which reach the ground, and, taking root, form new supports for the mother crown. And look there! a gigantic strangler (parasite Fig) smothers a noble Palm with its network of twigs, and a few steps farther stands a brother of this strangler, like a hollow cylindrical pillar without leaves, for the Palm it had embraced had died and decayed, and the cruel murderer now suffers the same fate. The pretty Bamboo forms large bouquets; Bananas and Strelitzias spread their fresh green leaves; large gay flowers unfold their scented cups; feathery Acacias form shady roots, and prickly Cactus-like Euphorbias are woven into thick hedges. Here I saw in concrete reality a number of the most remarkable and loveliest forms of the tropic flora of which I had read and dreamed for thirty years; and in the sunny air sported thousands of the most beautiful butterflies; great golden beetles darted through the bushes; hundreds of swift lizards and snakes glided among the leaves; noisy flocks of splendidly feathered birds flew from tree to tree—all new forms which I had never seen alive, and yet seemed old acquaintance. I snatched at everything like a child, and laid my hands upon the trunks of the Palm and Bamboos to convince myself that all was not a dream of fairy-land!"

In Ceylon the Cocoa-nut and other Palms especially attracted his attention. He says—

"The number of Cocoa Palms on the island is calculated at 40,000,000, each Palm yielding from eighty to a hundred nuts (eight to ten quarts of oil). It is not found in the northern half of the island, nor on a great part of the eastern coast. Its place is here supplied by the not less useful Palmyra Palm (*Borassus flabelliformis*). This is the same which covers the hot and dry districts of Hindostan, growing in great profusion near Bombay. Even from a distance the two Palms vary greatly. The Palmyra is a Fan Palm, with a strong, very straight black stem, topped by a thick bunch of fan-shaped leaves. The Cocoa, on the other hand, is a Feather Palm; its slender white stem, 60 to 80 feet high, is gracefully curved and adorned with a bushy crown of feathery leaves. The lovely Areca Palm (*Areca catechu*) has similar but stiffer and smaller leaves, and a tapering reed-like stem; it is an invariable feature of a Singhalese garden, carefully tended for the sake of the nut, which, being chewed together with the leaf of the Betel Pepper, colours the teeth and saliva red. Another Palm, the Kitool (*Caryota urens*) is cultivated chiefly on account of its abundant sugar-sap, from which palm-sugar (Djaggeri) and Palm wine (Toddy) are prepared. Its stiff strong stem supports a crown of double-feathered leaves resembling those of the Maidenhair Fern (*Adiantum Capillus-Veneris*.) After the Palms the most important trees in the little gardens of the Singhalese are the Breadfruit and the Mango. Of the former there are two kinds, the ordinary Breadfruit (*Artocarpus incisa*), and the Jak Tree

(*Artocarpus integrifolia*), growing everywhere in great profusion. Another tree frequently cultivated by the natives is the curious Cotton Tree (*Bombax*). Mingled with these round the Singhalese huts is the beautiful Banana or Pisang Tree, well deserving the name of 'Fig of Paradise' (*Musa sapientum*). Its beautiful yellow fruit, affording excellent nourishment either raw or cooked, is here seen in numerous varieties. Magnificent clusters of its gigantic light green leaves topping a slender stem from 20 to 30 feet high overhang the Singhalese huts, and form their loveliest adornment. Scarcely less effective are the arrowy leaves of the Aroidæ, especially of the *Caladium*, cultivated for its esculent roots, the same being the case with the *Manihot*, with its lovely clusters of hand-shaped leaves (belonging to the *Euphorbiacæ*)."

A native garden is thus described :—

"The garden of Whist Bungalow has been converted, by the care and taste of its proprietor, into a veritable earthly paradise, containing examples of almost every native plant of importance, and thus forming a valuable botanical collection, as well as a fragrant and delightful pleasure garden. On the very first morning of my stay, as I wandered in rapturous delight under the shade of Palms and Fig Trees, Bananas, and Acacias, I gained a very comprehensive idea of the flora of the plains. Here the noble Palm in all its variety of foliage and fruit rears its stately columns; Cocoa and Talipot, Areca and Borassus, Caryota and Palmyra; here the Banana spreads its great feathery leaves to the wind, and displays its clusters of precious golden fruit. As well as various kinds of the common Banana (*Musa sapientum*), a fine example of the Traveller's Tree of Madagascar may here be seen (*Urania speciosa*). It stands just at the division of the principal walk, from which the path to the right leads to the bungalow, and that to the left brings us to a magnificent specimen of the Banyan or sacred Fig Tree (*Ficus bengalensis*), forming, with its hanging air-roots and numerous stems, a very striking object; beautiful Gothic arches open out among the roots which, pillar-wise, support the main structure of the tree. Other trees of various groups (*Terminalia*, Laurels, Myrtles, Ironwood Trees, Breadfruit, &c.) are overgrown and intertwined with those lovely creeping and climbing plants which play so important a part in the flora of Ceylon. These belong to the most varied families, for in the dense forests of this magic island, and under the favourable influences of moisture and warmth, a countless multitude of climbing plants strive and cling, and grasp their way upward to the light and air.

"Among the charms of this most lovely garden must be included the large-leaved Calla plants or Aroidæ, and the graceful feathery Ferns, two groups of plants, which, both by their individual mass and by the beauty and size of their development, occupy an important place in the lower flora of Ceylon. Scattered among them are many of the finest shrubs and flowering plants of the tropics, partly indigenous, partly introduced from other tropical regions, especially from South America, but all perfectly at home here. Among these rises the stately Hibiscus, with great yellow or red flowers; the Flame Tree or Acacia, a mass of splendid flame-coloured clusters (*Cæsalpinia*); venerable Tamarinds with their aromatic blossoms; while from every branch hang clinging *Convolvuli* with gigantic bell-shaped flowers, and *Aristolochias*, yellow and brown. Rubiaceous plants, such as Lilies, Orchids, &c., bear extraordinarily large and beautiful blossoms."

Similar interesting descriptions of the fauna and scenery are also given, but need not be repeated here.



KITCHEN GARDEN.

Sow Cauliflower seed to raise plants for pricking out into hand-lights and frames to secure a supply of heads in early summer. A light open situation should be chosen, and the seed not sown too thickly, so as to insure a sturdy growth in the seedlings; the soil also should be moderately firm. Veitch's Extra Early Dwarf Forcing, from its preceding other varieties by a fortnight, is very valuable, and being of dwarf growth is suitable for planting in pits at a distance of 15 to 18 inches apart. Frost being excluded, and air admitted freely upon all favourable occasions, close heads of pearly whiteness may be cut early in May. Early London and Walcheren are excellent successional varieties.

Lettuce seed should now be sown to raise plants for placing out in late summer or early autumn to give a supply of heads for salads in spring and early summer. Stanstead Park and Hardy White Dutch are the best of the Cabbage varieties, and the Cos varieties

Hick's Hardy White, and Bath or Brown Black-seeded, are preferable. If these can be sown where they are to remain it will be an advantage, sowing in drills about a foot apart, and thinning to about 6 inches for the Cabbage sorts and 9 inches for the Cos, so as to allow of every alternate plant being drawn for early use. A moderately sheltered border should be chosen, and the soil should be rich, and where light made moderately firm, which will check the tendency to a gross growth, keeping the plants sturdy and better able to withstand severe weather. The thinnings will be available for planting out later on as suitable positions become vacant.

Radishes for winter use may now be sown, China Rose being probably the best, but Black Spanish and Californian Mammoth are excellent. The seed should be sown in rich light soil in a sheltered position, and not too thickly, as when grown well they form large roots, which are crisp, tender, and good in winter, keeping satisfactorily in damp sand when the weather precludes their being had from the open ground. Radishes of the summer kinds should be sown at intervals of about three weeks to have them in good condition.

Continue to plant Lettuces and Endive, and where the latter is in demand provision must be made accordingly by placing out a good breadth from the main crop or July sowing. A last sowing can be made at once where it is in request in spring, transplanting to the foot of south walls next month or into pits. Tie up Cos Lettuces and water copiously in dry weather, so as to have them crisp and well blanched.

Early Celery will need earthing up, watering if necessary before doing so, keeping the soil from the centre of the plants by drawing the leaves together, and firming the soil well about the heads. Later plants should have very moderate earthings, as they grow best without much soil over the roots, and should be well supplied with water or liquid manure. Any likely deficiency in the supply of green vegetables in winter and spring should be provided against at once by planting Borecoles, Coleworts, &c. Cauliflower plants may yet be placed out, choosing a sheltered situation, and if the autumn be favourable useful heads will be obtained, and for lifting to continue the supply in frames after the supply is stopped outside by severe weather. Late Peas and Dwarf and Runner Beans will need plentiful supplies of water in dry weather, and the pods should be picked as they become fit for use.

Keep weeds well under by frequently stirring the soil between growing crops, and where this is not practicable their removal by hand must be attended to in good time. Rubbish will now accumulate rapidly, and should be thrown into a heap and mixed with a little lime and a sprinkling of salt. This is very valuable as manure for many crops.

FRUIT HOUSES.

Peaches and Nectarines.—Some of the leaves of the trees in the earliest forced house will be beginning to change and fall, which should not be accelerated, as is sometimes done, by brushing over the trees; but, on the other hand, endeavour by occasional syringing to keep the leaves healthy until they fall naturally. The roof lights being withdrawn the wind will bring the leaves down quite as fast as they mature; and the foliage having fallen is not, as is too often concluded, a sign of the maturity of the wood, but rather indicative of the ripening of the foliage being accelerated by a deficiency of moisture at the roots and the presence of insects. The continuance of the leaves on the trees will tend to prevent the premature swelling of the buds.

In the house started early in the year, and from which the fruit was removed in June or early July, the trees will now have the wood ripened and the buds well plumped, in which case the roof lights should be removed; but if the trees are very vigorous the lights must not be removed so soon by three weeks or a month as is necessary for older trees having less vigorous wood: but as long as the lights are kept over them full ventilation must be given day and night. Any trees that are unduly vigorous and do not set their fruit well should have the root-action checked by judiciously shortening the roots as advised in this calendar for July 20th. The Peach scale sometimes attack the trees about the ripening period, and as the

application of an insecticide then would have an injurious effect upon the fruit it is often delayed until the fruit is gathered. Of approved insecticides the cheapest is petroleum, but it is necessary that the oil be well mixed with the water. We use a fluid ounce to a 3-gallon pot of water at a temperature of 120°. Many insecticides owe much of their potency to the temperature at which they are applied. Even water at 160° will destroy most insects, and is quite safe for plants that have the wood and foliage mature.

The trees in the house started in February will be cleared of the fruit. They should be examined and all the shoots that have borne fruit, not being extensions, may be cut away to those that have been trained in at their base as bearing wood for next season, and where the shoots are too crowded they must be thinned. Thoroughly cleanse the foliage of red spider by the forcible application of water from the garden engine or where there is sufficient pressure with the hose. If there be any doubt as to the ripeness of the wood allow the temperature to rise to 80° or 85° by day, without, however, keeping the house closed, and ventilate fully at night, but do not allow the trees to suffer from insufficiency of water at the roots. Weakly trees can be assisted to plump their buds by the application of a little liquid manure.

In the late succession houses with the fruits ripening syringing must be confined to damping the surface of the borders occasionally; at the same time a very moist condition of the soil is not desirable, as it sometimes, particularly with vigorous trees, causes the fruit to split at the stone. Trees with fruit swelling should be well supplied with water, and be syringed twice daily in sunny weather until ripening commences. Fruit on the under side of the trellis should be raised to the light so as to colour it evenly. Keep the shoots tied and regulated, and pinch laterals to one joint of growth as made.

FLOWER GARDEN.

Flower beds are now at their best, and every effort should be made to keep them as perfect as possible by removing any dead or decayed leaves or flowers, regulating the growth of such plants as Verbenas, Petunias, and Tropæolums. Seed vessels should be removed immediately they are formed, for if allowed to remain they greatly exhaust the plant and check the formation of bloom. Beds showing signs of exhaustion must be assisted with liquid manure. Pelargoniums, except such as are grown for the beauty of their foliage, should be rather sparingly watered. In all cases when water is given it should be in such quantity as to soak the whole of the soil as deep as the roots penetrate. No time should be lost in raising a stock of the different varieties of Pelargoniums, so as to allow time to get them thoroughly established before winter. In taking cuttings it is necessary to exercise some care to avoid making gaps and spoiling the effect of the beds and borders, judicious thinning when the growth is crowded being an improvement, and the flowering is thereby prolonged.

Phloxes have been and are unusually fine. They should be well supplied with water whilst developing their heads of bloom; indeed, good rich moist soil is essential to the successful cultivation of these plants. Choice varieties may now be propagated either by cuttings or division. Polyanthus, Auriculas, Primroses, Myosotises, Gentians, and Daisies may still be increased by division, and considering the great beauty of these plants in the spring and early summer months it is remarkable they do not receive more attention. Their cultivation ought to become general in all gardens.

Roses promise a fine display of bloom in autumn, but mildew is very prevalent. Sulphur and soot dusted over the foliage in the early morning, and syringing off at eventide so as to thoroughly cleanse the foliage, is an effectual remedy. Liberal supplies of liquid manure in dry weather will be necessary to enable them to make free growth. Climbing varieties, such as Maréchal Niel, Gloire de Dijon, and Cloth of Gold should have all the old flowering wood cut out, and the young shoots of the present year's growth laid in to replace them for flowering next season. Climbing Roses flower much better when not spurred or pruned too closely. All climbers must be examined frequently, tied or nailed in, and the growth thinned out and regulated.

THE BEE-KEEPER.

AUTUMN TREATMENT OF STOCKS.

(Continued from page 137.)

ANOTHER point to notice is the extent of brood in hives at the end of the season, or say in the month of August. If six or eight of the central combs of a hive contain their large sheets of brood the hatch of young bees will make it a pretty good one for keeping; but if hatches of young bees from honey hives be united to them the hive will be doubly strong, swarm earlier, and do far more work next year. We have ever found and often laid it down as an axiom in bee culture, that the stronger hives are in population in autumn the safer they are in winter, the more valuable they are to the bee-keeper. Mr. Raitt has said lately that Mr. Pettigrew's disciples wastefully use bees in uniting swarms in autumn, but the practice we recommend is now extensively followed with ever-increasing confidence and satisfaction. We have no hesitation in asserting that no other practice or discovery in apiculture is more important and valuable than the one now recommended—viz., by making hives strong by uniting swarms in autumn. We believe with Mr. Raitt in stimulating feeding when necessary, but this is more costly and troublesome and less successful.

On selecting hives for stocks the bees of the condemned hives should be shaken or driven into empty hives with a view to unite them to those selected for stock. When hives are light and easily handled the bees are more easily shaken out than by the slower process of drumming or driving. When visiting a bee-keeper in Bowdon the other day I found he had two hives he wished to unite, but dreaded the work. He was asked to find an empty hive, and when he brought one to the garden I took the old hive in my hands and shook all the bees into the empty hive and united them to the other in less than three minutes without losing a bee. Mr. Brierley, the owner of the hives, said he had read of this process in the "Handy Book of Bees," but could not believe it could be so done. Though he said it is "most astonishing," this process is simple and easily performed. In uniting swarms the oldest queens are destroyed, and it is wise to take the precaution of giving both swarms some highly scented syrup half an hour before the union is made. This syrup serves two purposes: it puts all the bees in good temper, and partly destroys the peculiar smell of each swarm. Such unions should be made late in the afternoon or evening when the other hives in the garden are not flying about, otherwise they might smell the syrup and gain access to it during the confusion of the union. The day after the union the bees will defend their hive against all comers.

If the united swarms have not food enough in their hive they should be fed up to a safe-keeping weight, and such feeding if done in August or early part of September will probably cause the bees to recommence breeding, and a good hatch of bees may be added to the community late in the season, and thus the hive would be made stronger still and more valuable. But young beekeepers should know and remember that hives so strong in bees require more food than hives with less numerous populations. Autumn feeding should be done both as soon and as rapidly as possible for two reasons—first, that the breeding and hatching of brood may be over before frosty weather come; and secondly, in order that the bees may settle down into a quiet state before winter. In honey seasons when hives become too heavy for stocks what should be done? In such seasons we drive the bees out of all the hives, take all the honey, unite the swarms in empty hives, and feed all into stocks. In this way a large harvest of honey is obtained, and excellent stocks for keeping. Such syrup-fed stocks invariably do well; none do better. They are easily created and thrive uncommonly fast.

As to the best modes of feeding stocks and swarms we have nothing to say, every bee-keeper has a way of his own which he finds to answer well enough. The best time to administer food is about sunset, and not to give more than the bees can take up before the bees of the other hives begin to stir in the morning. Feeding during the day attracts robbers.

In the creation of stocks by feeding there is one point to be considered—viz., the use of artificial comb foundations. This year we have tried swarms with and without these foundations. What are called the thick or brood foundations cost 2s. 6d. per lb., and this is what is used in creating stocks; about five sheets of these, bar-frame size, weigh 1 lb. Ten sheets costing 5s. would fill an ordinary-sized bar-frame hive. The question I wish to see ven-

tilated is this, Are they worth the 5s. in the practice of creating stocks? For 5s. we can buy 20 lbs. of good sugar; 40 lbs. or thereabouts of good syrup can be made from 20 lbs. of sugar, and from 40 lbs. of syrup a large bar-frame or other hive can be filled with natural combs in warm weather. From the experiments we made this year with the artificial foundations for brood combs we have come to the conclusion that they are not economical, and for summer use in such work they are not worth the money they cost. Let others try the experiment of putting two swarms separately into empty hives. Let one of the hives have 1 lb. of the brood foundations, and the other 10 lbs. of sugar made into syrup. Let all the syrup be given to the hive in seven days. Then examine both and see which is the better, which has most perfect comb, which the heavier of the two. The sooner this question comes to the front and is fully and widely discussed the better will it be for bee-keepers and bee-keeping. Artificial comb foundations for supering answer well. They are made much thinner; eleven or twelve sheets of them, same size, weigh 1 lb., and cost 3s. Thus we see that of a sheet foundation for brood cost 6d., and a sheet (same size), for supering cost only 3d. For the present we shall leave this important question for others to answer and discuss, with the hope that they will examine it carefully and discuss it temperately.—A. PETTIGREW.

GLASS VERSUS "TIN."

It certainly is the duty of every bee-keeper to scrupulously refrain from any action or practice whereby the purity of honey might be impaired. Now, I contend, on chemical principles, that leaving honey in contact for a certain length of time with tin so-called ordinarily, but properly speaking with the alloy of tin and lead, as is the case when honey is filled into tin pails for the retail sale, or filled into tin tanks for maturing it, or permitted to stay for some time in the extractors, must expose it to contamination with lead.

Many of the readers of the "Bee Journal" will know that the ordinary sheet-tin is in reality sheet-iron coated with a thin film of an alloy of tin and lead. For hygienic considerations it would be desirable that this film should consist of pure tin. But, unluckily, pure tin does adhere only with the greatest difficulty and rather imperfectly to iron. Thus the manufacturers of sheet-tin are compelled to use an alloy of tin and lead. Nearly everybody knows the injurious effects of lead, in all its chemical combinations, and even in the minutest quantities, if long continued, upon the human system. It is contended that a small amount of lead alloyed with tin is so thoroughly held by the latter that it cannot be attacked and dissolved by the sugars and acids, and thus cannot enter into our articles of food. Granted. But, as far as I know, hygiene has never solved the question—with the assistance of analytical chemistry—how great the amount of lead may be in the alloy without incurring the risk of injury to the human system. The great difference in the prices of tin and lead is a standing inducement for the manufacturers to increase the proportions of lead enormously, and to an injurious extent.

Some time ago I analysed, for my own satisfaction, a sample of canned Tomatoes and one of canned Peaches. The first, against my expectation, did not contain any lead; but the latter did to a considerable extent. Whether the tin (so-called) of the Tomato-can contained less lead proportionately than the other can, or whether the sugar in the Peaches could exert a greater action upon the lead than the acid in the Tomatoes, I cannot decide. In the honey the saccharine and acid principles must attack the lead in the so-called tin vessels. I could observe that, a couple of years ago, my extractor was considerably corroded by the honey that was, by mistake, allowed to stay for some time.

The French Government has, some time ago, taken measures against the indiscriminate use of tin vessels for holding preserved food containing acid and saccharine substances. And I think bee-keepers ought to store their honey in glass or wood (how would paper kegs impregnated with paraffin do?) as long as no discrimination is made in the trade between tin (rich in lead) for roofing purposes and tin for holding articles of food.—LOUIS KNORR, M.D. (in *The American Bee Journal*.)

EQUALISING COLONIES.—For the best results it is necessary that all colonies be made strong by the time the honey harvest begins. The frames of comb should be well filled with brood, and the hives full of bees. With only a few colonies, all seemingly in the same condition, we find some will far outstrip others in brood-rearing. Frames of brood should be taken from the strongest and given to the weakest, and in this way equalise the colonies before harvest commences. It will not perceptibly injure the strong colony, and will soon put the weaker one in working condition. In building up weak colonies by this method it is better to do the work in the middle of the day, when the bees adhering to the combs can also be added, as they will nearly all be young bees, and will stay where put. In all manipulations of this kind first ascertain the whereabouts of the queen, so as not to transfer her with the combs.—(*Indiana Farmer*.)

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Myrtles (C. T.).—The writer of the article to which you refer resides in South Wales.

Planting Bulbs in Grass (Narcissus).—The bulbs may be planted any time during the autumn when the ground is not too wet, but it had better be done before severe frost is experienced. Those named are suitable, but you might add *Lencojm vernalis* and *Galanthus nivalis* with a few clumps of *Crocuses* of different colours. Be careful not to plant the bulbs too deeply, especially in the case of the small ones; just covering the crowns will be sufficient.

A Seedling Raspberry (F. B.).—The fruit arrived in a very unsatisfactory condition, but as far as we could see the variety appears inferior to many others in cultivation. The lateness of its fruiting, too, is no recommendation, as the autumn-fruiting or double-bearing varieties as they are termed are now coming in, and all these are greatly superior in size and quality to that you sent.

Anonymous (C. T. H.).—Under ordinary circumstances we would not have departed from our invariable custom, and should have expunged the portion of the communication you refer to; but in this case there was no secrecy, as the parties had corresponded with each other through this office in their proper names. We had the less hesitation in publishing the name in full, as the writer, in a case of this kind, very properly makes no secret of his individuality. But for this your remarks are very just and meet with our approval.

Treatment of Iresine Herbata (A. B.).—To obtain a stock in spring two methods may be adopted—namely, striking a few hundreds of cuttings now and keeping them in store pots during the winter, and by preserving the old plants lifted from the borders and potted. A stove temperature is required, and a light position, preferably a shelf near the glass, is also needed to ensure their success. Sufficient water must be given to prevent the foliage flagging, but it is best not to be too liberal in the supply of moisture until spring, when growth may be freely encouraged, and cuttings can be then obtained in abundance. Both for the old plants and the autumn cuttings a sandy soil is best. Inserted in moderate bottom heat the shoots strike readily.

Climbers for a Conservatory (F. J.).—You do not state the size of the conservatory or the number of plants required, both of which points should be considered in making a selection. If you have plenty of space and desire to have a diversified collection of free-flowering plants, all the following are suitable:—*Berberidopsis corallina*, *Bignonia speciosa*, *Bomarea Carderi*, *Bougainvillea glabra*, *Clematis indivisa lobata*, *Clianthus puniceus*, *Cobaea scandens variegata*, *Cestrum aurantiacum*, *Hardenbergia Comptoniana*, *Habrothamnus fascicularis*, *Hibbertia volubilis*, *Jasminum grandiflorum*, *Kennedyia Marryattae*, *Lapageria rosea* and *alba*, *Lonicera sempervirens*, *Mandevilla suaveolens*, *Passiflora racemosa caerulea*, *Plumbago capensis*, *Rhodochiton volubile*, *Rhynechospermum jasmynoides*, *Sollya heterophylla*, *Solanum jasmynoides*, and *Taesonina Van Volxemi*. If a less number are required select from the above, giving preference to the *Bougainvillea*, *Clematis*, *Habrothamnus*, *Jasminum*, *Lonicera*, and *Plumbago*.

Select Border Plants (Idem).—In Mr. Luekhurst's article upon "Cheap Flowers," page 126, last issue, you will find a list of useful hardy plants such as you appear to require, and in addition to these the following will be found useful:—*Achillea Ptarmica* fl.-pl., *Agrostemma Flos-Jovis*, *Anemone japonica* *Honorine Jobert*, *A. stellata fulgens*, *Coreopsis grandiflora*, *Campanula persicifolia alba plena*, *Chrysanthemum frutescens* varieties, *Dahlias* of the single and Pompon sections, *Erigeron alpinus*, *Geum coccineum plenum*, *Hesperis matronalis alba* and *purpurea plena*, *Lathyrus latifolius*, *Malva moschata alba*, *Matricaria inodora* fl.-pl., *Myosotis dissitiflora* and *M. palustris semperflorens*, *Orobis vernus*, *Pentstemon*, *Primula cortusoides*, *P. acaulis* fl.-pl., *P. rosea*, *Ranunculus amplexicaulis*, *R. aconitifolius plenus*, *R. acris* fl.-pl., *Senecio pulcher*, *Spiraea Filipendula* fl.-pl., *S. Ulmaria* fl.-pl., *Statice Limonium*, and *Violets*. The bulbs you mention should not be lifted until the foliage has decayed.

Guavas (X. F.).—These plants are produced by several species of *Psidium*, a genus allied to the Myrtle. They are grown in many of the chief botanic gardens, and at Kew specimens may be occasionally seen fruiting. The common Guava is *Psidium pyrifernum*, a tree 10 to 20 feet high, producing fruit of a pear shape, and grown extensively in the West Indies; and this is also known as the White Guava, in contradistinction to the fruit of *P. pomiferum* or Red Guava, which has a red flesh, very acid, and much inferior to the white. The common or White Guava is about as large as a tennis ball, the rind of a russet colour, tinged with red. The pulp is sweet, aromatic, of an agreeable flavour, and interspersed with numerous small white seeds. The fruit is very extensively eaten in the West Indies, both by the natives and by the Europeans, either raw or in the state of jelly; but it possesses great astringency, and is not suited to those of costive habits. The rind, when stewed, is eaten with milk, and is preferred to any other stewed fruit. From the same part marmalade is made; and the whole fruit prepared with sugar furnishes the celebrated Guava jelly. The bnds of Guava boiled with barley and liquorice produce an excellent drink for diarrhoeas, and even dysentery, when not too inveterate. The wood furnishes excellent fuel, burns with a bright heat, and lasts a long time. The fruit of *P. Cattleianum* is about the size of a small walnut, nearly round, of a deep purple

colour. The skin is of the consistence of that of the Fig, but is thinner. The interior is a soft fleshy pulp, purplish-red next the skin, but becoming paler towards the middle, and at the centre it is quite white. It is juicy, and in consistence is much like a Strawberry, which it resembles in flavour. This is one of the best of the Guavas, and is a native of China, whence it has been introduced to Brazil, and now it is grown extensively in both countries.

The Cherry Plum (J. E.).—The description of the Cherry Plum given on page 139 was accurate as far as it went, and was sufficient for the purpose of our reply. We now add that the fruit is medium-sized, cordate, somewhat flattened at the stalk, and terminated at the apex by a small nipple, which bears upon it the remnant of the style like a small bristle. Skin very thick and pale red, covered with small greyish white dots. Stalk three-quarters of an inch long, slender, and inserted in a small cavity. Flesh yellow, sweet, juicy, and subacid, adhering to the stone. This agrees with Linnaeus' description of the fruit, and any other account that differs from it in any essential particular is incorrect. The other Plum to which you refer is a different variety altogether, and probably has no existence now.

Wistaria Treatment (H. J.).—The young shoots should by timely attention to training be kept from twining round the wires, and be trained in moderately thin, so as to expose them freely to light and air, thereby solidifying the growth and ripening it, so as to induce a free disposition to flower. Any shoots not required for training-in should be cut back to a couple of joints of growth, and to one subsequently, so as to induce the formation of spurs. The young shoots should be trained-in their full length as far as space permits, and be otherwise stopped or spurred-in. If the situation be dry supply water freely in hot weather.

Mildew on Roses (W. M.).—The measures you have already adopted will probably be useful in promoting healthy growth; at the same time we recommend you to dissolve 3 ozs. of soft soap in a gallon of water, mixing in it also a small handful of flowers of sulphur, and syringe the trees with this mixture at a temperature of 120°. This will check the growth of the mildew, if it does not destroy it altogether. We name this remedy because it is generally at disposal. Nicotine soap and Ewing's mildew composition are alike useful for the same purpose.

Earwigs Eating Nectarines (A Forest Hill Reader).—Since the fruit is ripe or nearly so it would not be safe to apply any strong insecticides for destroying the pests; but by violent syringings you could dislodge them from their lurking places, and then prevent them ascending the wall again by a barrier of coal tar spread at or near the bottom of the wall, with cotton wool wrapped round the stems of the trees also smeared with tar. The insects no doubt can fly over the barriers, but that is not their usual method of locomotion when in quest of food. If you place a little moss or hay in small flower pots, these to be laid along the bottom of the wall, and examine the pots every morning, you may destroy numbers of earwigs. Our plan is to shake them into water as near the boiling point as possible; in this way we have killed thousands instantaneously, hence painlessly.

Double Stocks (D. E.).—If you perceive any single flowers that have more than four petals choose these for producing seed, removing the others, and you will be certain to have a large per-centage of double flowers; if you have no such abnormal flowers do not let too many pods mature on the same plant, and support the plants well. You may then hope for good results if the plants are in a favourable position for ripening the seed.

Grapes not Colouring (An Amateur).—We think on the whole you have been successful with your Vines. Those in pots are probably cropped rather too heavily, and it is not uncommon for young Vines with much extension growth beyond the bunches to fail to mature satisfactorily the whole of the berries. Undoubtedly the red spider would impair the colouring process. Syringe the Vines heavily after the fruit is cut, and wash the insects off the foliage. We think we warned you against keeping the old spider-infested Cucumber plants, and you are now paying the penalty of having followed what you considered a better plan than ours. Had you carried out our suggestions you would have had more Cucumbers, less red spider, cleaner Vines, and better Grapes. We will readily give you all the aid we can at any time. You have done right by liming the border, and it will probably be advisable to syringe the Vines next year after the fruit has set.

Melons not Setting (F. C.).—It is by no means easy for us to state the cause of your failure, but we presume it would not be difficult to determine the point if we could see the plants. The small size of the flowers indicates that the plants have received a check. This may have resulted from temporary dryness of the roots, or an excess of liquid manure; and again, the atmosphere of the house, as is not unfrequently the case, may have been too wet or too dry, and in either event the fruit would not set. The bottom heat of 75° to 80° would suffice if the treatment were right in other respects; but you do not mention the top heat or temperature of the house, which is a most important matter. The upright trellis is not the cause of the evil; still the growths are better trained up the roof of a house, and about a foot from the glass—the exact angle being of no importance whatever. You have overlooked what has been written, but the subject shall be treated more fully than is possible in the form of a reply.

Peaches and Nectarines (Idem).—To our taste there is quite as much difference in the flavour of some of those fruits, Nectarines especially, as between different varieties of Strawberries. The Strawberries you sent arrived like a sample of jam—utterly shapeless, and undistinguishable for the purpose of nomenclature.

Numbers of Journal (J. E.).—The date of the number 654 is October 9th, 1873; and of 789, May 11th, 1876.

Names of Fruits (Saltmarsh & Son).—The fruit was so much decayed we could not identify it. Plums should always be accompanied with a portion of young wood.

Names of Plants (A. B.).—The plant with variegated leaves is *Tradescantia discolor*, the other is *Isolepis gracilis*. (W. H. Myers).—12 and 24, *Aira caespitosa* (Tufted Hair Grass); 14, *Holcus lanatus* (Meadow Soft Grass); 27, *Lolium italicum* (Italian Rye Grass); 29, *Glyceria fluitans* (Floating Sweet Grass); 30, *Briza media* (Common Quaking Grass). (G. P., Devon).—*Ceterach officinarum*.

Management of Bees (M. B. D.).—So far as we understand the case—and we do not perceive how you could have made it more clear—both the old hive and the swarm are of fair strength, and the bees work actively. As regards the former, we should drive the bees into a bar-frame hive and take the honey; then feed them liberally at once. The swarm already in the bar-frame should be

fed as needed and according to circumstances, but no honey should be taken from the hive now. By carrying out this plan we think you will have two good hives next spring. See what Mr. Pettigrew says on page 161.

COVENT GARDEN MARKET.—AUGUST 16TH.

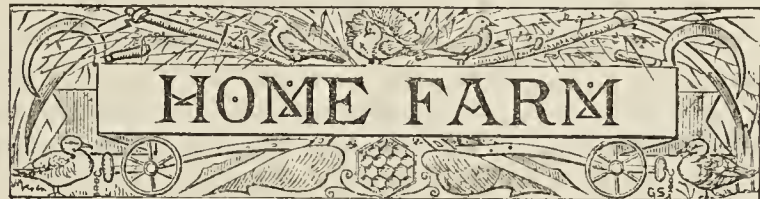
OUR market is still very quiet, and the supply of home-grown fruit has greatly fallen off within the past week.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	0	0	0	Lemons.....	case	20	0	0
Apricots.....	doz.	1	0	1	Melons.....	each	2	0	4
Cherries.....	½ sieve	0	0	0	Nectarines.....	dozen	4	0	12
Chestnuts.....	bushel	0	0	0	Oranges.....	100	6	0	10
Currants, Black..	½ sieve	5	0	0	Peaches.....	dozen	4	0	12
" Red....	½ sieve	2	6	3	Pears, kitchen..	dozen	0	0	0
Figs.....	dozen	4	0	0	dessert.....	dozen	1	0	2
Filberts.....	lb.	0	6	0	Pine Apples, English	lb.	3	0	4
Cobs.....	100 lb.	0	0	0	Raspberries.....	lb.	0	3	0
Gooseberries....	½ sieve	0	0	0	Strawberries....	lb.	0	6	1
Grapes.....	lb.	1	0	4					

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	0	Lettuces.....	score	1	0	1	0
Asparagus.....	bundle	0	0	0	0	Mushrooms.....	punnet	1	0	1	6
Beans, Kidney....	100	1	0	0	0	Mustard & Cress..	punnet	0	2	0	3
Beet, Red.....	dozen	1	0	2	0	Onions.....	bch.	0	6	0	0
Broccoli.....	bundle	0	9	1	6	Parsley..... doz.	bunches	3	0	4	0
Brussels Sprouts..	$\frac{1}{2}$ sieve	0	0	0	0	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Peas.....	quart	0	10	0	0
Capsicums.....	100	1	6	2	0	Potatoes.....	cwt.	6	0	7	0
Carrots.....	bunch	0	4	0	6	Kidney.....	cwt.	6	0	8	0
Cauliflowers.....	dozen	2	0	3	0	Radishes..... doz.	bunches	1	0	0	6
Celery.....	bundle	1	6	2	0	Rhubarb.....	bundle	0	4	0	6
Coleworts..... doz.	bunches	2	0	4	0	Salsafy.....	bundle	1	0	0	0
Cucumbers.....	each	0	4	0	6	Scorzonera.....	bundle	1	6	0	0
Endive.....	dozen	1	0	2	0	Seakale.....	basket	0	0	0	0
Fennel.....	bunch	0	3	0	0	Shallots.....	lb.	0	3	0	4
Garlic.....	lb.	0	6	0	0	Spinach.....	bushel	3	0	0	0
Herbs.....	bunch	0	2	0	0	Tomatoes.....	lb.	0	2	0	0
Leeks.....	bunch	0	3	0	4	Turnips.....	bunch	0	6	0	0



POULTRY AND PIGEON CHRONICLE.

THE NORFOLK OR FOUR-COURSE SYSTEM OF CROPPING.

(Continued from page 141.)

AS we have previously stated all that can be said in favour of this system of cropping on light, thin, and poor soils, we will now refer to the system when carried out upon the mixed and better soils in various parts of the kingdom, and the difficulties and disadvantages in connection with its adoption thereon. In the management of the Norfolk course proper—viz., Wheat, roots, Lent corn, and Clover, there is but little opportunity for cleaning the land if the season should prove wet and unfavourable when making the fallows for roots. From sowing the Lent corn there is no time or opportunity for clearing the land of couch or twitch as it is called, until after the Wheat crop is cleared off, a period of something like twenty-eight months, without breaking in upon the rotation and system of stocking, which by its advocates is claimed as important, and must be rigidly observed and performed, especially the stock of sheep and cattle.

The provision for sheep, especially for breeding ewes, forbids the ploughing of the Wheat stubbles in the autumn in order to forward the fallow land in the spring, because these stubbles afford the only run for the in-lamb ewes until the land is fallow-ploughed in the month of December. It is especially valuable for this purpose when Italian Rye grass has been sown in the Wheat for autumn-feeding, for we have known the stubbles folded off for sheep three times between harvest and Christmas when Italian Rye grass has been grown for the purpose. Some farmers feed their sheep on Clover in the Lent-corn stubbles in the autumn, but this practice often ruins the plant of Clover; the Clover plants die from this cause during the winter months, and in

consequence the land is called Clover-sick. If the Clover had been allowed to remain without feeding the sheep on them except slightly in September, the autumn leaf produced would have protected the crowns of the plants from frost during the whole of the winter months, and have given an impulse to the early spring growth of the Clover crop. Again, however, advisable it may be to have the stubbles of the Wheat land seeded, it must be remembered that Italian Rye grass unless specially prepared by the seedsman often contains the seeds of couch and Black grass, entailing further difficulties in making the fallows in the spring before the seeding for root crops. As the fallow for roots is the foundation of the cleaning process, enabling the four-course to be carried out, it prevents autumn cultivation as well as green crops being seeded in the autumn, such as Trifolium, Vetches, and Rye. It prevents the land being autumn-fallowed, but also makes the land unkindly for the seeding of root crops after the fodder crops are disposed of; at the same time it often proves fatal to root crops of heavy weight, owing to the delay of the seed time. This is one of the objectionable points in the four-course system, because the fallowing for roots must not under any pretext be deferred or interfered with, particularly upon the mixed soils and farms where couch and Black grass prevail. Many valuable corn-producing soils are so liable to encourage these grasses, especially when they are highly farmed or are deficient in chalk, lime, and marl, for when these important substances are absent from the land it favours the growth of couch in an extraordinary degree.

We must now look to the effect of a wet season upon the fallow break, such as those of 1853, 1860, 1879, and others, causing more or less difficulty; for in those we have named it was found totally impossible to clean the land during the period usually available for that purpose—namely, from the 1st of March to the 1st of June. The root seed must be sown, whether the land is as clean as it ought to be or not, between the 1st of June and the 1st of August, which is the only period for seeding which can be attended with success and furnish full crops of roots; in fact, in the northern counties we must add the month of May to the seeding time. It is very clear that in case the land cannot be seeded within the above-named period the root crops must be abandoned and the land lie fallow until August and September, and the process of cleaning the land be continued during the autumn. In that case the land will be laid up for the winter, ready to receive the Lent corn seed without spring ploughing. Although this may not be unfavourable for the crops of Lent corn whether of Barley or Oats if early sown and properly manured, yet it has proved fatal to the growth of roots by which the sheep and cattle are to be maintained, and upon which so much value is placed and attributed by the advocates of the Norfolk system of cropping.

It is worth consideration what can be done to assist in cleaning the land when the fallow in untoward seasons has been a failure to a certain extent in completing the preparation, because under such circumstances it is frequently found that when the roots are ready for the sheep, or fit for carrying away to store heaps for bullock-feeding, couch will still be found prevailing. When this happens it is imperative that these bunches of couch, however small, should be forked out previous to the sheep entering upon the folding and feeding, because there will be no other opportunity to attack the couch or black bent grasses, until the end of the four-course rotation has been carried out—a period of twenty-eight months. If we delay forking-out the grass from the root crop, and prefer to try and clean the land in the spring by horse labour and cultivation, we are met with the serious objection that it cannot be done thus without delaying the seed time, besides incurring expensive horse tillage, which together will prove fatal to the profit and benefit generally expected in the growth of Lent corn.

We must also remember that on the mixed soils and vale land

after the root crops have been fed off by sheep eating cake, corn, and hay, that the bulk of straw in the Lent corn will be great, especially that of Barley, which frequently becomes laid, injuring the grain, and likewise destroying the young Clover plants. This is not, however, so much the case when spring Wheat or Oats are sown after the root crops fed off; still, wherever the loss of the Clover plant occurs the mischief is not confined to the loss of the Clover intended for hay, but is extended into the next course. It is sure to injure the prospect for a Wheat crop, because in the Norfolk system the Clover roots have always been considered the basis of a good Wheat crop, and so it will prove upon any light soil when neither of the spring-sown crops grown are stout enough to injure the Clover plant. Upon the home farm where the Clover hay crop may be sold off the land, and also upon farms where the lease allows of its sale, the loss of the crop is irreparable, for the substitutes under the Norfolk system are not attended with advantage unless the growth of Beans or Peas are covenanted for; the only crop to be taken is a green fodder one for feeding sheep, such as Vetches or Trifolium, or Mustard, to be either fed off or ploughed in as manure. The management of the Clover crop and the mixtures of seed are of the highest importance, for broad or red Clover cannot be taken with any safety oftener than once in eight years, therefore the alternation must be carefully considered. We know no mixtures better than red Clover and Giant Sainfoin alternated with white Dutch and Alsike Clover, both to be grown without Rye grass, as this prejudices the crop of all cereals, and in lieu of it we introduce Giant Sainfoin in red Clover to facilitate the making of the hay in the absence of Rye grass, and it is frequently advisable to grow it also in admixture with the white Dutch for the same purpose.

The next point we have to consider is the disposal of the Clover crop. It is a common practice to cut the first growth for hay and feed sheep on the latter-math; but our experience is that the second growth should be cut for hay or for seed, because of the value of the Clover roots as manure for the Wheat, for the weight of roots is much larger after two cuttings than with one cutting and one folding with sheep. We have sometimes known where the Clover lain has proved foul with couch that attempts have been made to clean the land by what is called a bastard fallow after the first cutting of Clover has been taken for hay. This in our opinion is often fatal to the Wheat crop, for it not only destroys the Clover roots so valuable in the ordinary once ploughing for Wheat, but the attempt at fallowing proves injurious to the Wheat plant, as it becomes root-true, and breaks down previous to harvest, and seriously reduces the yield of grain. We shall now refer to a very important point for the home farmer to consider in connection with the four-course rotation upon the mixed soils or vale farms, because he is not obliged to grow Turnips to any such extent as one-fourth of the land, unless the stock of sheep and cattle fed on the pastures and parklands during the summer months render it necessary to ensure a large provision for them in the winter months. We do not object to the fallowing relating to the cultivation for Turnips, as that prepares the land for future crops, but it frequently occurs that in feeding and folding the Turnips by sheep in wet seasons the land is trodden and sodden, by which it becomes unkind both for the corn and Clover plants to follow. We therefore state that not only has the crop of Turnips, to which we have never seen an exception, when passed through the cutter and ploughed in proved most beneficial to the following future crops, but even better than when the roots have been fed off by sheep eating cake and hay in addition. A few days ago we noticed when passing over a farm that one-half of a field of Turnips had been fed off, the stock eating cake, on the other half the roots had been carefully reduced and ploughed in; the latter we estimated at two quarters

per more of grain, the crop being white Oats, than the half fed off by sheep, nor have we ever seen an exception to this result when the roots have been properly ploughed in. We shall, however, return to the consideration of this matter on a future occasion, and now conclude our subject by observing upon one of the most serious evils of the Norfolk rotation—that is, when sustaining losses by adverse seasons, there is no opportunity to retrieve them by change of cropping; all losses are therefore permanent.

WORK ON THE HOME FARM.

Horse Labour.—Harvest work being now the chief employment of both men and horses, large areas of corn have been cut and stacked in good condition in all the early districts of the kingdom, especially in the southern, eastern, and home counties. We must ask the home farmer to remember the harvest of last year, for the only corn got together in good condition was previous to the rains, which commenced on the 10th of August, and adverse weather continued, with little opportunity for carting in fair condition, until the end of September. The question to be considered is this—some farmers got up all their Wheat in the southern and eastern counties and some of their Barley and early White Oats before the rain set in, whilst other farmers having equally early crops had carted no Wheat and but little else, except Peas and White Oats, up to the 10th of August. In consequence of this dilatory conduct thousands of acres of Wheat were seriously damaged, and much of it rendered unsaleable, and was actually used for the feeding of fattening cattle and milch cows. This circumstance looks very like bad farming, which might have arisen from ignorance as to when corn in sheaf was fit for stacking or from carelessness; and it is a point worth consultation amongst farmers, What indications are there noticeable which should decide the matter as to when Wheat in sheaf is fit to carry to the rick or barn?

At the early stages of harvest the straw of Wheat may be ripe as to colour, but the knots in the straw will be soft, and the grain soft enough to yield on pressure between the thumb and finger; and when it is in that condition it should remain in shock or stook for some days, although the weather may be fine. Even then there may be some doubt as to whether the sheaves will be dry enough not to heat in the stack, simply because grass or weeds may prevail in the corn when cut, which will render the question of fitness for carting doubtful. If, however, the straw is free from weeds at the time of cutting, and the weather fine, the less time the corn remains in the field the better, for we have always found the point to be decided is, Will it heat or not? for that is the turning point of the whole matter of securing corn of every sort and pulse of every kind. When we have felt assured that it would not heat in the stack or barn, the best of grain has been the result; the less the corn is left to the effects of the sun and wind the better, for it certainly is the best grain which ripens into condition in the stack if it does not heat. But this is now a question to be decided under the system of exhausting heat by the fan from the rick, and it has been pointed out as to how far corn stacks can be allowed to heat without tainting the grain as to smell and taste, and it is stated that 80° of heat may be allowed in corn ricks with safety to the value of the grain. We are not sure of this, and the circumstances connected with the management at harvest work by different farmers are various, and we do not consider this matter will be decided so that a safe and uniform practice under the action of the exhausting-of-heat process can be relied on until further experience in its use will justify a decided opinion.

The home farmer will do well to be provided with the exhaust-fan and tackle connected therewith, and the time will come when he will reap the benefit of his own care and detail in conducting its operations, for we feel thoroughly convinced that this system of saving hay and corn as practised by Messrs. Neilson & Knowles is destined to become general, and enable the home farmer to conduct his harvest both of hay and corn with far greater advantage in difficult and uncertain weather than has ever heretofore been possible. But whenever the question of details of the system has been mastered and become fully known and set forth, it will require the strictest attention to carry out the detail in all its necessities, otherwise failure will follow as certainly as that machinery must stop if one cog in a wheel is absent. Some horses will be continually employed in using the reaping and binding machine, and we recommend its being used for Barley as well as Wheat and Oats; for when Barley is cut and tied it cannot all be stained if the weather should prove wet and stormy, but especially when the Clover is strong and rank amongst it, if not tied it must lie on the ground until the Clover is dried sufficiently to prevent heat in the stack or barn, and before it is ready if rain occurs the Barley will be seriously stained and unfit for malting purposes. The steam cultivator we have seen at work since the harvest began, and land enough has already been cleared of its crop of Wheat, so that the cultivator may work with advantage; and as the weather has been fine for the most part, we notice that the steam-cultivated land has received benefit far beyond any horse labour, even if the horses can be spared to do such work. But these have ploughing and seeding with Turnip seed to do daily, by drilling every evening, and thus finishing off the land daily as fast as ploughed whilst the ground is moist, and the seed sure to vegetate—a matter of great

importance at all times, but especially when drilling Turnip seed in the harvest, for every day is of importance.

Hand Labour.—In order that the ricks may be thatched as fast as made, it is desirable to have a thatcher attached to the staff of labourers on the farm. Straw has been very dear and scarce, and it will in consequence be well to thrash Wheat in the field in order that the straw may be available for immediate use.

Live Stock.—Since the first day of this month the sheep have required constant attention, especially the lambs, for the weather having been hot the flies have been very busy; and where the sheep have not been dipped or coloured with fly powders, the animals have been much injured in their fleeces. All the lambs intended for wintering may be shorn with great advantage, for they winter much better, and we find that this should be done by the middle of this month; but we do not wash them. The hogs when sold will then realise from seven to 6s. to 8s. each more than if they had been fattened without shearing. This hot weather will render different management necessary for the dairy cows, as they should come into the pens at daytime from 10 until 4 o'clock to avoid the flies, which disturb them greatly, and shorten the quantity of milk and the milking period also. If, however, they get a quiet lair during sunny days with a bait of second cutting of Clover in their racks, it will not only serve to increase the milk, but enable them to continue yielding a supply for a longer period, and this we consider one of the most important points in the management of dairy cows.

POULTRY AND PIGEONS

FATTENING FOWLS FOR THE TABLE.

We gave in our last article the most simple methods of improving the condition of poultry for the table. As was said, we believe them to be sufficient for the production of delicious birds. It is, however, a well-known fact that the best fowls procurable in the French markets are superior to, or at least carry a much greater amount of white flesh than those which we are used to see on English dinner tables; we will therefore fulfil our promise of translating some passages from a French author on the methods pursued by French poultry growers. There are two systems in France of artificial fattening—the one consists in the forcible cramming of the fowls by hand with balls of meal, in much the same way as they are crammed in England; the other in cramming them through funnels with farinaceous food in a more liquid state. We will first speak of the former.

The dealers and small farmers who pursue the trade in the La Flèche district buy in the markets and from their neighbours the finest pullets and cockerels which have never bred; these are not caponised, but they take a little longer to fatten than the pullets. The finest pullets are got up to 9 lbs. weight or more, the cockerels to 13 lbs., and sometimes more. "They fat (to translate at length the words of a great authority, from whose writings on this subject extracts have already been made in the pages of the Journal) from fifty to eighty and a hundred at a time. The work begins in October, and goes on till the ordinary carnival time. For it they begin by setting up all round, and on the floor of some room or other suitable place, small coops made of stakes or the roughest wood that can serve for sides and divisions. These rude contrivances are made by the fatteners, and cost, so to speak, nothing but the labour and price of a few nails. Their height should be from 18 to 22 inches; their length is optional, provided that the longest do not hold more than six chickens, and give each bird room enough to be comfortable without walking about. All light coming directly from outside is excluded, and all chinks in the doors and windows of the apartment are fastened-up to prevent too free entry of external air. To accustom the chickens to the system of forced feeding and seclusion to which they are destined for the first eight days they are confined in a somewhat dark place, and have no food but a moist rather thick dough of the same kind of meal as the fattening balls, mixed with a third part or half bran. During this preliminary trial they are allowed to eat and drink at pleasure. The mixture which serves for the feeding balls is generally made in the following proportions:—viz., half buckwheat, a third barley, and a sixth oats (the coarse husk is taken out). Every day enough of this meal is mixed in either new or sour milk to suffice for two feeds, one in the evening and the other the next morning. Some add a little hog's lard to the ingredients of this dough, specially towards the end of the process. The meal must neither be too stiff or too thin, and rolled out into pieces like an olive in shape, half an inch thick and 2 inches long. At the feeding times, which should be very regular, the poultryman or feeder takes three chickens at a time, ties them all three together by the legs,

puts them on his knees, and by the light of a lamp begins by making them swallow a spoonful of water or whey—some do not give them anything to drink—then he puts a ball of meal into the mouth of each chicken by turn, and to aid its passage into the crop slides his thumb and two first fingers gently down from the neck to the crop, and so prevents its rejection.

"By thus attending to three chickens at once they give them time enough for digestion, and the birds are taken in proper and regular order. During the early days of cramming they think it enough to fill partially the crop of each chicken, but by degrees they increase the quantity of balls till they give them twelve or even fifteen at each feed. They must be dipped in water before they are administered to help them down the throat. There is no fixed duration for the process of fattening, it depends upon the disposition of the bird and its strength. Some chickens cannot be raised to perfection without danger of accidents; the experienced feeder knows the moment when to stop. No one can entirely escape losses; they say that in spite of knowledge and pains there is such a thing as good and bad luck, seasons more or less favourable, the causes of which cannot be explained. Those who have for many years successfully carried on the process in one place experience heavy losses in another, though they pursue the same method, from being unable to bring their chickens to perfection. Some fowls are quite fat at the end of six weeks, others at two months. Sometimes if a bird still seems to take its food with avidity they continue to administer it as long as possible, and so attain marvels of weight. They calculate that some chickens consume $2\frac{1}{2}$ gallons of meal, some as much as $3\frac{3}{4}$."

The author proceeds to say that during this process no litter is placed under them and their pens are never cleaned, and that though the odours consequent on this are necessary (!) for the fattening process they are often baneful to the fatteners, who spend all their days and parts of the night in the places, the first meal beginning at 4 A.M., and barely terminating at noon; the second beginning towards 3 P.M., and finishing towards 11. We should strongly object to this state of dirt, equally for the fowls and their breeders; however, as "the proof of the pudding is in the eating," so we suppose must the proof of the fowl be.

He continues, "To conclude, when the feeder takes his chickens from the coop, he himself performs the work of bleeding and plucking them, and before they are cold presses them on their back on a flat board, and shapes them in the desired fashion by means of pieces of wood or stone to keep them in place; he then puts entirely over each a little damp linen cloth to refine the fat." To sum up, the principal points to be observed in fattening are—

"1. The finest young cocks and pullets of the year must be chosen, showing all the above-named good qualities.

"2. They must not be caponised, as is the common practice in some places.

"3. A dark place must be got ready where the air changes as little as possible, and where the chickens can be confined in their coop without being too much cramped.

"4. The coops must not be cleaned during the whole time of fattening.

"5. The chickens must be accustomed to forcible feeding for from eight to ten days before the regular system is begun.

"6. They must be carefully and quickly made to swallow the balls of food.

"7. They must have two feeds at regular times in the twenty-four hours.

"8. They must not be made to take a fixed number of balls, all alike; it must depend upon an examination of their crops, which during the early days should be partially filled, and later on quite filled, but never gorged.

"9. The food described must be their sole diet, without any change, save as to the proportion of the ingredients, which may be varied according to circumstances.

"10. Discernment is necessary as to the time when fattening is finished, and watchfulness as to birds which require to be removed before they go off or die. If all these points are carefully observed the result must be good."

Such is one of the French methods of artificial fattening. We will endeavour soon to give the other method—viz., that of funnel-feeding.—C.

HERTFORD POULTRY SHOW.

THE first Exhibition of poultry and Pigeons and dogs took place at Hertford on Wednesday and Thursday, August 9th and 10th, and was a decided success in every way, the arrangements were perfect and the weather fine. There was a most excellent Committee, all

worked harmoniously, and the attendance was large. The Kennel Club and Poultry Club rules were in force. The Judges for Dogs were Edgar Hanbury, Esq., Rev. G. L. Hodson, Harry Jones, Esq., C. S. Lindsett, Esq., F. Redmond, Esq., J. H. Salter, Esq. The Judges for poultry were Messrs. T. Coke, Burnell, and M. Leno, Esqs. For Pigeons F. Esquilant, Esq., who was assisted by Major-General Hassard, C.B. We were glad to see this old and well-known fancier before the public again.

There were 686 entries for the dog show, and 777 for poultry and Pigeons. The pieces of plate for the prizes were in good taste, and the cards to be sent to each noticed exhibitor well prepared. Messrs. Durrant and Mather were Secretaries for the Dog Show, and Messrs. Breeze and Brett for poultry, and Mr. Billett provided the necessary poultry and Pigeon pens. The dogs were exceedingly good, and fox terriers formed a very large class. Space will not allow our going into particulars of each class. The poultry and Pigeons were very superior. We particularly noticed a white Cochin cock shown by Mr. Darby, the grandest White we have seen. There were some very good Blacks, and the Buffs were excellent. In the Poland classes Mr. Beldon's second prize delighted us, as a Chamois Poland is a thing of the past, and we are glad to see it is not quite lost, the crest of the cock was quite equal to the drawings in the poultry books.

Messrs. Fowler showed Ducks well as usual. When we say Messrs. Fulton and Hammock were among the Pigeon exhibitors nothing more need be said as to the quality. Mr. Fulton winning the cup for best bird in Show, except in Classes 70 and 71, which was won by Mr. A. Allen. The county of Hertford has had such an auspicious beginning, we hope the Show will be continued annually.

THE WARWICK SHOW FRAUD.—The sentences passed in this case, the particulars of which we gave last week, were as follows:—Groutage fifteen months imprisonment, and Cockerill four months imprisonment. The Judge intimated his readiness to make an order for the restitution of the proceeds of the fraud to the rightful owners.

STAFFORDSHIRE AGRICULTURAL SOCIETY.—We would call the attention of our readers to the postponement of the date of the poultry Show to be held at Lichfield in connection with the Exhibition of the Staffordshire Agricultural Society on September 26th and 27th, instead of the 12th and 13th of that month as previously arranged.

OUR LETTER BOX.

Fowl's Tail Crooked (F. G.).—The condition of your bird indicates that it is suffering from spinal curvature which causes the tail to be carried constantly on one side. It frequently arises from over-growth when young, caused usually by too high feeding and too much confinement. Nourishing but not animal food, a good run, and abundance of green food, are in such cases the best preventives. It is sometimes also the result of too much in-breeding or inherited. Such birds should be killed.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882. August.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	6	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
		30.183	62.6	57.2	N.	61.6	80.8	59.9	128.3	41.2		
		30.173	65.2	58.4	N.W.	63.0	72.9	57.3	122.1	52.8		
		30.214	61.4	56.6	N.	62.8	72.8	53.8	127.0	48.2		
		30.245	57.4	52.9	N.E.	62.2	73.4	48.0	117.5	42.4		
		30.287	56.9	55.3	N.E.	62.2	65.7	54.4	82.0	50.7		
		30.225	62.7	57.7	E.	61.6	71.5	56.3	114.4	55.8		
		30.012	65.3	61.7	E.	61.3	80.4	51.2	115.6	41.4		
		30.191	61.6	57.1		62.1	73.9	53.1	113.8	48.6		

REMARKS.

6th.—Fine, bright, hot day; bright starlight night.
7th.—Cloudy first part of day, afterwards fine and warm; cloudy evening.
8th.—Very dull at first, afterwards fine and bright; evening starlight and cool.
9th.—Cloudy morning, afterwards fine and bright; warm misty evening.
10th.—Dull and overcast throughout, very slight rain after 9 P.M.
11th.—Generally cloudy, but bright in the latter part of the day; many shooting stars at night.
12th.—Fog in early morning, fine, hot, but rather oppressive day; lightning and a slight shower in late evening.

Temperature about the average, and a little below that of the preceding week. The barometer continued high, and, as is frequently the case with a high barometer, the weather was inclined to be cloudy and dull, though no measurable quantity of rain fell.—G. J. SYMONS.



24th	TH	Reading Autumn Show.
25th	F	
26th	S	Sale of Dutch Bulbs at Mr. Stevens's Rooms, Covent Garden.
27th	SUN	12TH SUNDAY AFTER TRINITY.
28th	M	
29th	TU	
30th	W	

RENOVATING PEACH AND NECTARINE TREES— THE "YELLOWS."

WELL-ARRANGED and well-managed Peach houses are both a source of much pleasure and profit. The houses need not necessarily be expensive in construction, they make but little difference to the coke bill in a garden where other houses are being constantly heated, and, in addition, can be utilised for various other purposes. It is not my intention at present to discuss which is the best style of house for Peach culture and most profitable method of arranging the trees, further than expressing the opinion that the houses should be constructed to admit of a double row of trees—one on the back wall and the other on a semicircular trellis in front, rather than train the trees to a trellis near the glass, somewhat after the manner of Vines. The former is the method adopted here, and which I should be sorry to see altered, especially as our back wall is 12 feet high. The position of our houses is also particularly favourable, and the range is 190 feet long, divided into three compartments, two being heated and one unheated. I found it furnished with well-formed trees, comprising several sorts worth growing, and not merely as many as could be crowded in; there are a few, however, which are doomed.

Unfortunately the trees were in an unsatisfactory condition, being afflicted in many instances with the "yellows"—that is to say, the points of the young growths were yellow instead of a dark healthy green colour. This may be thought a rather singular name for a complaint, but those who are acquainted with the symptoms know the crops obtained from such trees are of comparatively little value till these same "yellows" are prevented. The trees when in this condition, unless too far gone, flower freely and set good crops of fruit, which appear to stone well, but the majority drop when apparently near perfection. If fruits drop before they are quite ripe they are not fit to eat, and when this dropping occurs there is of a certainty something radically wrong with the roots of the trees. It is true over-dryness or over-cropping may result somewhat similarly, but in the latter case especially, I think, we more often err in not cropping heavy enough, always supposing we have healthy vigorous trees. A fruit to every square foot of tree surface might do for older generations, but it will not satisfy either "gardeners' greed" or employers' demands of the present time, and twice that quantity have to be grown of kinds which bear moderate-sized fruit.

An over-cropped tree, and which, perhaps, has not had sufficient moisture supplied to it above and below ground, will, as a rule, be plentifully covered with insects, such as red spider

and aphides. Now, I found trees afflicted with the "yellows" were not infested with those pests, probably because of the absence of the food they prefer. This, however, was poor compensation, and drastic remedies had to be applied. It must be understood the "yellows" are caused by too deep root-action, this being the result of either an insufficient supply of moisture or poverty of surface soil, or both. If no means are taken to keep the roots of Peach, or indeed of any fruit trees, near the surface they will inevitably strike downwards in search of the necessary food, and this, it is almost needless to say, marks the commencement of the trees' decay. The roots should be near the surface to such an extent as to render it impossible to lightly point up the soil without detaching bunches of them. In this position they derive much benefit from the warm atmosphere, the soakings of liquid manure, and any fertilising top-dressings that may be applied, all of which are wasted on borders containing deep fibreless roots. Last year at this time it was a difficult matter to find any roots, but suckers were remarkably abundant. This has been completely changed, and as a consequence valuable crops of fruit have been and are being secured. The remedy for trees in the condition described is simple, and consists of either partial or wholly lifting, and placing the roots near the surface in fresh soil. Good turf, nearly or quite fresh, a sprinkling of lime rubbish and wood ashes, form an excellent compost, using also a little decayed manure.

We commenced operations early in September, and completed the late house by the end of the month. In each instance the growth was ripened and the buds plumped, this being long before the leaves dropped. At this time the root-action is most brisk, and it follows if many of the roots are carefully lifted and placed in fresh soil numbers of rootlets form long before the foliage falls. By these means a good foundation is laid for an early start the following season.

In the early house one tree was too far gone for renovation. This was removed, the soil being cleared away to a depth of about 2 feet, and a width each way of 6 feet. Fresh soil was introduced, and afterwards occupied with an overcrowded tree from the successional house. This transplanting was no easy matter, as the tree was disposed behind a double row of hot-water pipes in front of the house, and as it would have to be similarly placed in the fresh position not much earth could be moved with it. In moving we first cut a circular trench as far off the stems as we safely could without injuring the adjoining trees to a depth of about 30 inches, and then gradually forked away the soil from the roots, carefully preserving these till within 18 inches of the stem. The ball thus retained was then partially undermined and reduced to a manageable size, after which the tree was loosened and gradually brought down to the ground, while the earth and roots were drawn out from under the pipes. It was then worked through the doorway into the next compartment and replanted. Much of the foliage was unavoidably broken, but by carefully shading from bright sunshine and frequently syringing at times during the day we succeeded in preserving the majority of the healthy leaves. Prior to removal the tree was in a bad condition, but this season, although forced, it has improved wonderfully, and during June ripened five dozen excellent fruit, besides forming abundance of medium-sized well-ripened growths, ranging from 18 to 30 inches in length. The variety is the Early Grosse Mignonne, and the tree covers a space of about 12 feet by 8 feet.

I have assisted in transplanting much larger trees from a vinery, these being carried a considerable distance, disposed against a high wall and a house built over them. In every case the trees the following season were more or less forced, carried fair crops of fruit, and formed excellent growth.

It is always of importance in lifting to preserve as many roots as possible, this being best attained by opening a deep trench as far off the stem as circumstances will admit or the size of the tree necessitates, and when forking the soil from the roots to keep it thrown out of the trench. In fact, unless this is strictly practised it will be impossible to properly undermine the tree so as to admit of its being placed on a board or a flat hand-barrow, with which it is necessary to carry the great weight sometimes secured. If left to themselves the men are apt to neglect keeping the trench open and then roughly drag out the trees. This will not do. Neither should a very large ball of earth be taken, or there will be danger of large pieces falling off, carrying away many valuable roots at the same time. A moderate-sized ball made flat underneath and all unoccupied surface soil pricked off prior to the trees' removal will be found the best plan. The soil should be moist when used, and kept in that state afterwards.

Peaches and Nectarines are so accommodating in disposition that young trees can be readily prepared for the forcing houses either in the open air, or, better still, in a late house. To plant a tree newly received from a nursery direct into a forcing house is, as a rule, a mistake, being both injurious to the tree and wasteful of house space. I prefer to have the young trees in a bearing state and under my own care prior to planting in early or second-early houses, as this admits of fruiting the old trees to the last, and the young trees being moved in full leaf can then be safely forced and fruited at once. After planting a tree with foliage intact the house may be kept somewhat close for a week without injuring the older occupants, and by carefully shading and syringing the tree operated on, it soon recovers.

In the case of the "yellows" it is not necessary to completely lift the trees to restore them, but a trench should be cut as if for removing, and the old soil being picked away from the roots to within 3 feet of the stem of a moderate-sized tree, which covers, say, a space 12 feet by 8 feet. If new soil is scarce much of the old surface soil may be disposed at the bottom of the hole made, allowing a depth of 18 inches for the fresh compost, the latter, if possible, to consist of turfy loam, or, failing this, the best clayey loam procurable, adding to every four barrowloads one of short stable manure, half a barrowful of old mortar rubbish, not throwing out the small brick ends, wood ashes to be dusted about the roots as they are being covered. Charred refuse may with advantage be mixed with some soil, but it must always be remembered that neither Peach, Nectarine, nor any other fruit trees should be planted in a very loose compost. Firmness should always be insured from the bottom to the top of the border.

After the roots are trimmed always dispose them in a flat or horizontal position exactly as they start from the stems, the bottom tier to be covered with moderately fine compost; the next tier should be disposed on this, and so on till the whole are buried, the topmost tier being brought to within about 2 inches of the surface. In this manner the roots are evenly disposed throughout the fertile soil, and will form rootlets more readily than if matted together as they sometimes are when the soil is thrown in promiscuously. If properly attended to in watering and syringings the trees will be able during the following season to perfect heavy crops of superior fruit, and will also form growth of the best possible quality. Those in charge of them will never regret having taken some trouble with the trees, and will probably take every precaution to keep the roots nearer the surface in the future than they have been in the past.

Trees on the open walls would continue fruitful much longer if treated similarly, as the growth formed under more favourable conditions is healthier and ripens more certainly, and is consequently less liable to injury by severe frosts. There is no doubt the uncertainty attending open-air culture of Peaches has led many to wisely provide houses for them, but I still think it possible to grow good crops on the open walls over a

wide district of the country, provided there is sufficient labour for keeping the trees healthy by lifting them as frequently as may be needed, and the essentials are provided for protecting them in spring. The Peach crop on the open walls at Frogmore I believe seldom fails.

In concluding these notes I wish to point out emphatically that Peach and Nectarine trees cannot be lifted too soon after the crops are gathered, as then, if the foliage is kept fresh by shading and syringing, the trees become established before winter, and will bear freely the following season.—W. IGGULDEN.

MUSHROOMS FOR THE MILLION.

(Continued from page 98.)

INTELLIGENT SUPERVISION.

THIS consists chiefly in covering the beds so as to maintain a steady and equable temperature, also in watering them at the proper time and in the right manner. As previously mentioned, sufficient straw can be shaken from the manure on its arrival from the stables for the purpose of covering the beds. There can be no better material than this—indeed, no other is so good for placing in immediate contact with the surface of a Mushroom bed. If during unusually severe weather clean straw or fern must be used, it should always be placed on the other covering, never on the soil under it, as it is somewhat strange to observe that when this has been done after Mushrooms have commenced growing considerable injury has resulted to the crop. The long litter shaken out from the manure is placed in a large heap and heats more or less; it should, however, not be turned, but be allowed to heat itself dry, and it will then be in the best possible condition for use. Its peculiar nature and smell appear to be precisely suitable for Mushrooms; at any rate they are produced far more freely under such a covering than under a layer of sweet clean straw or hay. A sufficiency of this litter should therefore be secured if possible, and it can usually be obtained if the manure is collected, long and short together, just as comes from the stables. There is a danger in gathering the manure that the long may be refused, under the impression that it will not decay sufficiently for use in the beds. It certainly will not decay to that extent, but it is of the greatest service nevertheless, for it is important to remember that, however suitable the decayed portion may be and strong the spawn, if the beds are not thickly covered with proper material satisfactory crops of Mushrooms cannot be produced.

The proper degree of thickness of the covering can only be determined by the heat in the beds and the weather. If the weather is mild and the bed comparatively new a covering of 6 inches of litter will suffice. If the bed is old and the temperature of the air remains still mild, the covering must be twice that thickness; while during severe and prolonged frost 2 feet or more in depth of straw, protected with mats, canvas, or some such material, will be absolutely necessary, and sometimes the beds are covered 3 feet thick. Beginners, however, should endeavour to have beds to come in bearing in October or April, as Mushrooms grow with freedom then, and experience would be gained for extending the period of gathering when greater care is needed. The proper temperature of a bed can be determined by the hand. If when it is placed on the surface under the straw and the slightest possible warmth is felt, that will suffice; or, for the sake of greater accuracy, if a thermometer is laid on the soil at night, and

in the morning when the straw is removed the temperature is neither many degrees below or above 50° , it will be safe. The instrument is no doubt a useful guide for the experienced, but it is certain to be dispensed with after a few crops have been gathered. Mushrooms will form and grow at a temperature of 40° when the bed is permeated with strong spawn; but their movement is slow, and a mean ranging from 10° or 15° higher should, if possible, be maintained.

WATERING MUSHROOM BEDS.

During bright weather in autumn, spring, and especially early summer, when the beds need little covering, they often require, especially those that are bearing heavily, frequent supplies of water. It is of the greatest importance that the soil is never permitted to become dry, and water must be given as often as is needed in quantity sufficient to prevent this. The time chosen for applying water should be early in the afternoon of a sunny day. The covering on the beds will be then quite warm, and on this, not under it, the water must be sprinkled in sufficient quantity to percolate through it and gradually moisten the soil. Immediately after watering the beds they should be covered with mats to prevent the moisture evaporating, and the vapour that will be generated will result in a cool humid atmosphere under the mats and straw precisely conducive to the growth of Mushrooms, the mats to be removed in the morning. Those who are not experienced in the method of culture in question cannot understand that Mushrooms can be produced in summer on account of the heat, forgetting that by using sufficient straw, and sprinkling it, permitting at the same time free evaporation, that the beds may even be made too cold for the crop, on the same principle that ice-cold water can be produced under a tropical sun by enveloping the porous vessels in which it is stored with a medium that can be kept moist when the constant evaporation, with the ever-attendant lowering of temperature, produces the effect desired; still, as a rule, the crops are not profitable after the middle of June, as the Mushrooms, owing to the nitrogen they contain, speedily decay after being gathered in hot weather, and they can then no more be eaten with safety than meat can that is in a state of decomposition. If this simple fact were impressed on the minds of those Mushroom-consumers who do not always think before they eat there would be fewer records of injury resulting from partaking too freely of this esculent.

EXHAUSTED BEDS.

Mushroom beds partially exhausted by heavy and continuous bearing may be in some measure renovated by a free application of liquid manure, sufficient being given at a temperature of 100° to penetrate the entire mass of manure. The drainings from a manure heap are good for this purpose diluted until the liquid is of the colour of pale ale, 1 or 2 ozs. of common salt being added to each gallon. When the above tank liquid manure cannot be had perfectly clear soot water of the colour indicated, with salt as directed, may be advantageously applied, or an ounce of sulphate of ammonia dissolved in four gallons of water will be found equally beneficial. These stimulants are often of great value to beds in private gardens where a steady and prolonged supply of Mushrooms has to be maintained; but when beds in the open air are once fairly

exhausted by heavy bearing they can seldom be profitably renovated by the use of stimulants.

Salt has been recommended, and lest there be any timid readers who may fear to use it at the strength named, they may take courage from the fact that Mr. Barter regularly uses it at the rate of a quarter of a pound to a gallon of water, but applied, be it remembered, over the straw covering. So beneficial is salt to Mushroom beds that it is used regularly whenever bearing beds require watering, and it was found just as the quantity was increased so the crops were improved, and the Mushrooms were rendered more white and fleshy.

GATHERING MUSHROOMS.

Different opinions are held by cultivators relative to the best method of gathering Mushrooms. Some advocate and practise cutting them, removing the stems a few days afterwards when they can be withdrawn easily; others pull them up, but usually do it in a very cautious manner as if afraid of disturbing the beds and arresting the growth of further produce. When the writer



Fig. 28.—Pulling v. Cutting Mushrooms.

received his first lessons in Mushroom culture thirty-five years ago it was regarded as little short of criminal to pull Mushrooms, the orthodox plan being to cut them. If the old practitioners who gathered the crops so tenderly and almost in fear and trembling lest no others should follow, could see the manner in which Mushrooms are gathered for market they would scarcely believe their own eyes. Not only are they torn ruthlessly from the beds, but the roots are dug out if they are not sufficiently broken in the process of pulling. It is usual to have two baskets, the large Mushrooms being placed in one and the "buttons" in the other, the soil being knocked off the roots as the work proceeds. When the stems are separated, as many are, close on the surface of the bed, leaving the stump undisturbed in the soil, this stump is at once scooped out with a knife, leaving a round open cavity in which a walnut might be placed. This to the uninitiated appears barbarous work; it looks like spoiling the beds and preventing the production of successional crops. That it has not that effect is certain, or those to whom every pound of Mushrooms is an object would not adopt it. The result of the digging-out process is the direct opposite of that indicated. Instead of impair-

ing the productiveness of the beds it increases it, and for a very good reason that is, however, not very easy to make intelligible to all. If the lines of communication—the threads of the mycelium—from the interior to the surface of the beds which terminate in clusters of Mushrooms are not broken the strength of the beds—the Mushroom-producing force, is expended on the old stumps, and very frequently, indeed almost invariably, finds expression in masses of fluff of a cauliflower-like appearance, or a gigantic mass of mould or fungus. These masses if permitted speedily attain the size of dinner plates, and no more marketable Mushrooms are produced where they occur; but on the other hand, when the stumps are scooped out and the mycelium lines are severed, small tubercles form at the end of each and speedily develope into Mushrooms. The effect of this is that rings of fine produce form round each cavity, and thus the productiveness of the beds is prolonged and increased. Hundreds of gardeners know nothing of this, and there are few probably who dare practise it boldly at first; but if they were to see the thousands of indentures or cavities made in a Mushroom ridge in removing the crop, and a week hence see the fine rings of Mushrooms springing round each cavity, they would at once perceive the soundness of the practice of digging out the roots; and if for the sake of experiment some stumps were left undisturbed, and they could also see the result—the great masses of mould and no Mushrooms—they would be still further convinced that the skilled market growers have excellent reasons for the practice described.

Endeavour has been made to show as faithfully as possible in the accompanying engraving examples of digging and non-digging the stumps out of Mushroom beds at the time of gathering the crop, and the effects in one part of Mushrooms springing round the indentures are apparent, while in the other, where the stumps were not disturbed, there is a large white mass of mould and no Mushrooms.

It may be urged against this system of gathering the crops that beds have continued bearing when a different method has been pursued. This may be the fact, as it is equally a fact that one man has travelled over the Falls of Niagara on a tight rope, and another crossed the channel in a balloon, but these are neither safe nor sure modes of transit for others to attempt. And in the subject in hand—obtaining the greatest quantity of Mushrooms from prepared beds—the object is to point out a path that shall be the safest and the best for all to traverse who may engage in the work.

(To be continued.)

STANDARD ROSES.

THERE is a cry recently raised against standard Roses which I venture to think has been taken up and pushed beyond the bounds of reason and common sense, as many a cry has been in times gone by. If I were asked, "Whence this cry?" I should answer that it has apparently been started by those who are innocent of this particular form of the Rose while abounding in dwarfs. I cannot understand why standard Roses, which in the past have been admitted on the highest authority indispensable in the composition of garden scenery and otherwise desirable in both large and small gardens, should be altogether undesirable now. Is not the cry an exemplification of the old fable of the "Fox and the Grapes?" Nevertheless, I am free to admit that the former popularity of the name, and the matchless splendour of the objects both as individuals and in groups, have led people deficient in taste to place them in unsuitable positions. But this surely tells no more against their proper employment

than the traveller's tale of the savage's use of an Englishman's wardrobe does against the proper employment by the owner of any special article of civilised dress.

One great use of standard Roses in large gardens is the elevated masses of colour they present to the eye both in near and distant views, while in small gardens the avenue of standards is often one of its prettiest features. Then what is more beautiful in the conservatory than standard Tea-scented Roses? Without following out all the uses to which they may be advantageously applied, I venture to predict that they who discard them from their gardens now will miss them greatly in the future, and seek in vain for something that will satisfactorily fill their places. With greater reason might a cry have been raised against the sorts of Roses that have been, and still are, in some instances grown as standards. Here, indeed, is the modicum of truth in the cry which gives it a temporary hold on the public mind, and renders the matter worthy of investigation.

It is beyond controversy that the natural term of life of certain sorts of Roses when grown as standards is three years, two years, or even one year only, as that of man is threescore years and ten, and that a prolongation of this term carries with it all the accompaniments of old age. What will the uninitiated say when they are told that certain sorts of Roses seen at the Rose shows are budded yearly by the exhibitors, and never cared for after they have given their first year's blooms? But it may here be asked "Why does the Rose-grower bring such ephemeral goods into the market?" His reply probably would be, "Why does the public persist in purchasing them?" and add that it is not his business to dictate to his customers what they shall buy, but to be prepared to supply what they demand. The remedy on the part of the purchaser would be to choose his sorts from trees seen growing in nurseries or gardens, and in doing so inquire (if the fact is not apparent on the surface by the age of the tree or otherwise) whether the sort has a good constitution and habit as well as a handsome flower. There is one special advantage in growing Roses as standards which was suggested to me by an old friend, a distinguished horticulturist, when discussing the subject the other day, and I will put it in his words—"I agree with all you say, and will add one reason more; in growing Roses as standards the flowers are brought near to our eyes and noses, and those who, like you and I, are growing old have not to bend the back or go on all fours to see and smell them."—WILLIAM PAUL, *Paul's Nurseries, Waltham Cross.*

A COTTAGER'S PEAS.

IT is very gratifying to observe how great is the interest that many hardworking sons of toil—the agricultural labourers, in some rural districts—take in the cultivation of their gardens, and how fine are the crops they produce. Local exhibitions of garden produce have stimulated, not to superior culture only, but to the acquisition of new varieties, which it might be imagined could only be obtained by the affluent; but when a man, however humble his position may be, has a strong and firm desire to excel and distance his neighbours in the rarity or excellence of his crops he will soon find a way to procure the best varieties obtainable "regardless of price." At the first glance it is not improbable that there may be some excellent individuals who are animated with the best possible motives, and earnestly desirous of seeing their humbler friends prosperous, who may deem it highly imprudent for a man earning not more than 2s. 6d. per day to give more than that sum for a small packet of Peas or a pound of Potatoes. But it by no means follows that the man who does that is imprudent; on the contrary, it is evidence of thoughtfulness and enterprise, which not infrequently brings a reward.

Recently in my travels I was surprised to find in the garden of a labourer one of the finest examples of Pea culture I have seen. The occupant of this garden had been a prizewinner in some cottagers' classes at a local show. He there saw some of the newer varieties of Peas, and resolved to have them and grow them as well or better than those that had arrested his attention. He purchased the new varieties in small quantities, grew them well, and saved the seed. The surplus of this he sells locally, and more than recoups himself for his original outlay, and has extremely fine and very profitable rows of Peas into the bargain.

Like a wise man he does not sow his Peas in parallel rows a few feet apart—that is to say, instead of having five rows 10 yards long each, side by side, he has one row 50 yards in length. He prefers the row at the side of a walk as economising space, the ground on the other side being planted with early Potatoes, which do not exclude the light and air from the Peas, hence the haulm is sturdy, strong, and fruitful.

The ground is prepared as if for a row of Celery to be grown

for a prize, and the trench is not quite filled when the Peas are sown and covered. Provision is thus made for applying liquid manure quickly and in large quantity as may be needed. Thin sowing is practised, as saving seed, which is costly, and the seed so saved pays for the manure that is used to make the rows so vigorous and the crop so fine.

The varieties grown freely by this cottager this year are Telegraph, Telephone, Culverwell's Giant Marrow, Stratagem, and Pride of the Market. A correspondent on page 153 last week gave the preference to the last-named variety over Stratagem; the cottager is exactly of the same opinion. He regards both as very good, but says Pride of the Market is a "better bearer and better eater." As to Telegraph and Telephone, the former he esteems the most productive and generally useful "for such folk as me," but the latter is the sweeter, and thinks it will "make a good parson's Pea;" but he says "Culverwell's Giant is the biggest of all," and he shall grow "a lot of it." Considering it is such a new Pea he has "a lot" already, and as he has tried it and found it "first-rate" when cooked, he says he shall "go in" for a lot more, and he knows he can sell every seed at a "long figure." Certainly the crop was a splendid one, the row 7 feet high being laden with huge well-filled pods, some containing thirteen peas.

Here, then, we have a farm labourer purchasing Peas at prices that well-to-do people fear to give, or they cannot indulge in "such extravagance;" but when a man gets, as this man easily will do, much more than 100 per cent. for his outlay, growing new and dear Peas indicates good judgment and commendable prudence, for those new Peas are decidedly the most profitable crop in this working man's garden. It is not enough, however, to buy the Peas, sow them without special care, and leave them to take their chance. They must, as the man says, "be forced—make a show and a noise to cause a sensation, then everybody who sees them wants a pint." Perhaps this little record of facts may be suggestive to some readers of the Journal who have a prejudice against, or think they cannot afford to purchase "new Peas."—A TRAVELLER.

THE COLOURS OF FLOWERS.

ON pages 105 and 106 you notice Mr. Grant Allen's views on the colours of flowers. It seems to me that there are many phenomena which militate against his conclusions, and which should be explained before these can be accepted. Mr. Grant Allen's theory is that all flowers were in their earliest form yellow; then some of them became white, after that a few of them grew to be red or purple, and finally a comparatively small number acquired various shades of lilac, mauve, violet, or blue. I understand his arguments to be, 1, That yellow and white flowers are the commonest and blue the rarest. 2, That stamens are commonly yellow; that petals are modified stamens; therefore that petals were yellow until some circumstance arose to change them. 3, That the smallest, simplest, and most regular flowers are yellow or white; and that as flowers advance in complexity to irregular petals, to a united corolla, and lastly to an irregular united corolla, the red and blue shades become more frequent. 4, That colours change is by no means uncommon, and that it is always—(I am commenting on the article in the January *Cornhill*; I see that your quotation is "in almost all known cases," so perhaps this is somewhat modified)—in the same direction, from yellow or white, through pink, orange, or red, to purple or blue. 5, That the colours of flowers are liable to sport back to those of their ancestors, and hence white specimens are common in the red, and red, white, or purple in the normally blue kinds.

Now to take these in order. The first may be admitted; it is, however, no proof that the blue flowers have passed through other stages. The second is perhaps Mr. Grant Allen's strongest argument. It is, however, merely a reasoning from the probable. Many botanists, indeed, suppose petals to be modifications of the leaves, not of the stamens at all; and in the very instances adduced to prove the contrary—the staminodes of the white Water Lily, the rays of the *Mesembryanthemum*, the extra petals of the double Rose, the petaloid filaments of the Star of Bethlehem—the modified organs take from the very first the colour of the outer row of petals. Was a case ever known of a double flower in which the extra petals retained the colour of the stamens instead of adopting that of the corolla?

Mr. Grant Allen shows, no doubt, that many irregular flowers are coloured blue; and he quotes the Composites, the Labiates, the Snapdragons, and the Orchids as the most profoundly modified of all existing flowers, and also those in which blue and purple flowers are commonest; but if the doctrine of regular procession be true, it seems to me that blue, the colour of the fourth stage, should prevail here, not purple and blue, the third and fourth taken together. Now, if we were asked in what families blue

colour is most prevalent, I think we should mention the Flaxes, in which the petals are regular and separate; the Violets and Spiderworts, in which they are irregular and separate; the Bell-flowers, Gentians, Nemophilas, and Borages, in which they are regular and combined. Perhaps we might add Labiates, though the blues of the order seem to be decidedly outnumbered by the purples. But of Mr. Grant Allen's other types blue is by no means a common colour in the Snapdragon family. The Speedwells are our only native examples; and in the Orchids, the most remarkably developed of all flowers, I believe that a really blue colour is unknown. There remain the Composites, among which, considering the vast number of species, the small number of blue flowers is very remarkable; while such as there are belong chiefly, as the Succory, Endive, and foreign Lettuces, to the Dandelion group, which Mr. Grant Allen considers the least advanced in the order, and which is certainly characterised by the enormous majority of yellow flowers. It must be a puzzle for the theory to account for the small number of intermediates between the yellows and the blues.

As to colour change, Mr. Grant Allen quotes one instance—a Forget-me-not—of passage from pale yellow through pink to blue. I doubt if he could name a second, and even here the white stage is omitted. Changes from white or pale pink to crimson are no doubt frequent. *Quisqualis indica* might have been added to the list, and the Rose which we call Archduke Charles. But there certainly are many instances of change in the reverse direction. *Brunfelsia americana* changes from pure white to primrose. I believe that *Solandra grandiflora* does much the same. Mr. Grant Allen himself describes a Wallflower which has a white stage before the citron yellow. Again, *Ipomæa rubro-cœrulea* fades from azure blue to reddish; an arboreal *Solanum*, I believe *S. macranthum*, is violet the first day, pale lilac the second, and silver white the third, while the changes of *Franciscia* are in the same direction. I should draw the inference that white and blue flowers often change, yellow and red scarcely ever, and that the cause is in all probability merely chemical and quite unconnected with heredity.

Lastly, the sports quoted by Mr. Grant Allen are admitted; but who ever heard of those flowers sporting back to yellow? It appears to me that this alone is almost conclusive against blue and purple flowers having passed through a yellow stage as well as a white one.—WILLIAM WATERFIELD.

THE BEST MANURE.

I MAKE no pretence to a knowledge of chemistry, and therefore cannot say whether Professor Voelcker (see page 121) is right or wrong in his analysis of earth-closet manure, but I am prepared to say, and to prove if necessary, that the estimate he places on it, supposing him to be correctly quoted by "INQUIRER," is far too low, and that most fruits, vegetables, and flowers can be grown by its aid alone quite as satisfactorily as they can be produced by any other fertiliser, either natural or artificial. I have often wondered why the earth-closet system has not been adopted to a greater extent. It seems that we have now the key to the mystery, and that the chemists are responsible for it. I do not deny the valuable aid which chemistry has rendered to agriculture and horticulture, but it would be madness on our part, when a certain manure has proved practically to be of the greatest possible value, to throw it aside simply because a professor, however eminent, cannot find the fertilising ingredients in it.

"INQUIRER" seems to have an idea that chemists are infallible, and that we are bound to take as proven everything they tell us. I hope the chemists themselves do not think so, and, indeed, I know they cannot, for every now and then there are startling discoveries which in a great measure upset their former theories, and must have the effect of forcing them sometimes to reconsider what have been supposed to be facts. That chemistry has a bright future before it I am certain, but what is wanted is original research by persons unfettered with old notions. That there are such in the field, and that we are on the eve of great discoveries, may be gathered from one or two papers which have appeared in this Journal of late, and with which I have been much interested, notably the review on the "Report of the Sussex Association for the Improvement of Agriculture," which was published in the number for August 3rd.

I would humbly suggest to Professor Voelcker, or any other chemist who may be disposed to analyse soil from an earth closet, that he obtains his sample elsewhere than from a prison or work-house, for possibly the diet and exercise enjoyed by the inmates of such institutions are not such as are best calculated to produce the most fertilising material. It may appear presumptuous, but I altogether object to the statement attributed to Dr. Voelcker

"that the high estimate of the value of earth-closet manure does not rest on any solid foundation," for even Dr. Voelcker himself, I imagine, does not deny that pure night soil contains high manurial properties; and granted this much, I would ask, What becomes of the nitrogen, &c., when simple dry earth is mixed with it? We who know the value of earth-closet manure take care that there is nothing used for deodorising which can have the effect of driving away the ammonia, also that the soil is in the best possible condition for absorbing it, so that only a small quantity is needed. To dry the soil after it has used by the aid of strong fire heat must have the effect of driving off a great deal that is valuable, and the practice can only be defended where soil is more valuable than manure—certainly it ought not to be tolerated in any but our largest cities.

"INQUIRER" must remember that my statements rested on something more than theory. I was simply telling my readers what had been used for the production of Vines and Grapes, of which a well-known writer and good gardener said in this Journal last October, that "a similar example of culture had not been attained in the time in the Queen's dominions;" and as nothing else has been used besides what was described, I would ask "INQUIRER" to suggest where the stimulant came from. That the small quantity of Standen's manure used did not produce it I have had proof this season, which I will partly describe. The earth-closet manure was used on some of the Vines, and as there was not sufficient for all it was used on those which were supposed to be most in need of it, an extra dressing of Standen's manure being given to those which had none of the favourite mixture, and the difference is so very remarkable that I am now prepared to agree with "SINGLE-HANDED" that I make a mistake in using Standen's manure for this purpose. I have used it hitherto because in a trial with several other concentrated manures a few years ago I found it to be the most satisfactory, but I have my doubts whether the quality is of so high a standard now as it once was.

I wish to tender my thanks to "SINGLE-HANDED" for his papers on manuring. I hope your readers will turn his advice to good account.—WILLIAM TAYLOR.

FORGET-ME-NOTS.

In simple unobtrusive beauty what hardy flowers can equal the Forget-me-nots? Whether they be growing in native luxuriance near some shady brook or stream, in the most humble or most elaborate garden, in the conservatory, or whether we see the flowers alone in vases or bouquets, they are invariably admired and can claim a position amongst the most general favourites. Now spring bedding is so fast growing in popularity increasing attention is being paid to these plants, for few beds are more effective than a well-filled one of Forget-me-nots with some suitable margin, say lines of red and white Daisies. Their cultivation in pots also is being greatly extended, and many growers send large quantities to market in spring and early summer, while in suitable localities, particularly under the shade of fruit trees, acres of these plants are grown to afford flowers for cutting. Such evidence of the demand existing for them is sufficient apology, if any be needed, for devoting a little attention to these charming plants, especially as the present season is a suitable one for seed-sowing to obtain a stock in spring.

Names to many persons possess considerable interest, and few plant names are invested with more romance than the Forget-me-not. Everyone knows the German legend of the unfortunate but devoted lover whose exclamation as he threw the flower to his lady on the river bank is said to have given it the popular title which it still bears. It is not, however, so generally known, as Dr. Prior has pointed out, that quite a different plant was long designated Forget-me-not both in England and on the continent. The old writers, Gerarde, Parkinson, and many others, all bestow this title upon the *Ajuga Chamæpitys*, not on account of its beauty or from any similar romantic associations to those connected with the *Myosotis palustris*, but from its possessing a nauseous flavour which is likely to dwell in the memory of those who have tasted the plant. *Veronica Chamædryas* has also been so named in Denmark and elsewhere, while it appears to have been bestowed upon some plant in the middle ages which cannot be now recognised. The English name of Scorpion Grass refers to the inflorescence, which is considered to resemble the tail of a scorpion. As a popular name, however, Forget-me-not is much preferable, and is often adopted now for the whole genus, though originally restricted to one species. The botanical title *Myosotis* is an old classical name, having been employed by Pliny and others, and signifies Mouse-ear, in reference to the shape of the leaves.

The species of *Myosotis* are rather numerous. Between fifty and

sixty are known besides some varieties; but few are in general cultivation even in large collections of hardy plants, and more than half a dozen species are rarely seen in any but botanic gardens. Of so large a number it may be readily imagined that many are unfitted for general cultivation, being wanting in the richness of colour or size of blooms which characterise the best of those now grown. The true Forget-me-not (*Myosotis palustris*) is the most common, and for general garden culture is very useful, especially in rather moist situations; and its free growth, abundant bright blue flowers, and long-continued beauty are its great recommendations. One variety named *semperflorens* continues blooming very late in the season. As this is a perennial plant, when once a stock is obtained it is little trouble afterwards, but, like other species of the same type, it is benefited by occasional lifting, the soil being freshened by the addition of a little light rich compost. It can be increased by division of the plants, cuttings, or seeds.

M. sylvatica (the Wood Forget-me-not) is also well known and thrives well in beds and borders, but appears best when grown in dense clumps. Though preferring a somewhat damp and shady situation, this will succeed in drier positions than the preceding, and its bright blue flowers are always welcome.

M. dissitiflora is an acknowledged favourite with all; the early season at which it blooms and the great size of the flowers well entitling it to its popularity. This has proved invaluable for spring bedding, and for culture in pots to afford a supply of flowers early in the season it is also greatly appreciated. The size and clear blue colour of the flowers admirably adapt them for bouquets, buttonholes, or floral decoration generally, especially as they are obtainable at a season when such are most in demand. A plentiful stock can be raised from seed sown at the present time in prepared beds outside or in pans or pots for forcing. A compost of light loam, leaf soil in equal proportions, with a little well-decayed manure and sand, suit it well, water being liberally supplied in dry weather to beds outside and to plants in pots. Most forms of *Myosotis*, in fact, except the alpines, require abundance of water, but they are impatient of any approach to stagnation, particularly when grown in pots. Varieties have been obtained with flowers greatly surpassing the ordinary type in size, two named *splendens* and *grandiflora* being similarly good in this respect.

M. azorica, a compact-growing species of branching habit, often not exceeding 6 inches in height, is one of the best for pot culture; and though its flowers are not so brilliantly blue as some of its allies, they are so freely produced that a well-grown plant appears to be literally a mass of blooms. It is on this account that the Azorean Forget-me-not is prized for pots, and when arranged in the marginal rows of groups or on stages the plants have a most pleasing effect. A white-flowered variety has been obtained, and is grown as a companion to this.

M. rupicola is a charming little alpine plant that is more at home on the rockery than in open beds, and if a suitable nook be assigned it, moderately sheltered and not too dry, it will thrive and flower as well as could be desired. In pots also it is extremely pretty, but a little attention is needed to ensure its success under that method of cultivation. It is extremely dwarf, 2 or 3 inches high, of tufted habit, and the bright blue flowers are abundantly produced, possessing, moreover, an additional recommendation—a slight but agreeable fragrance. It may be readily increased by seed, cuttings, or division of the plants.

Of the varieties grown, in addition to those mentioned above *Myosotis Weirleigh Surprise* must by no means be omitted, its pretty blue and white-striped flowers being so distinct in appearance from all others in the genus. *M. Impératrice Elizabeth*, with purplish blue flowers and of dwarf habit, well suiting it for pots, is also a useful variety, and to these may be added the variegated form *M. elegantissima*, which is so well adapted for the margins of spring beds or as clumps in the mixed border. Many more species might be enumerated, all possessing some attractions, but the above will be found sufficient in most gardens, and a few particulars regarding the general cultivation may now be given.

The quickest mode of raising a stock of Forget-me-nots, even of the perennials, is by seeds, which most produce very freely, and as these readily germinate, abundance of plants can thus be soon obtained. When preparing for a display next spring the seed should be sown at once, either in prepared beds of light moderately rich soil, from which the young plants can be afterwards transferred to the positions where they are required, or the seed can be sown in the allotted beds and the plants remain without being transplanted. Wherever there is much demand for flowers it is well to have a bed in a shady position, where the supply can be prolonged until autumn. For culture in pots similar treatment may be afforded—namely, the seeds can be either sown in the pots, or the young plants raised in beds can be pricked out when large

enough either into 60 or 48-size according to their size. Increasing the stock by cuttings or division of the plants is best attended to in spring, the first-named being inserted in light sandy soil, and the divisions need merely to be transplanted and well supplied with water.—L. C.

COLLECTIONS OF SEEDS.

MR. BARTRUM on page 114 has, it appears to me, no substantial cause of complaint. He admits the seeds he obtained in "collections" were good, and does not deny the collections were cheap. This being so, why should he object to the names of the firms which supplied the seeds being prefixed to the varieties? If any seedsman introduces a new and distinct "Pea, Lettuce, or any other vegetable," he has a perfect right to have his name attached to it, and it is obviously the same as regards a firm. If the vegetable is not new but in general cultivation the name of any particular firm prefixed to it is of no moment, and Mr. Bartrum will do no one an injustice by not naming the firm, for the variety will be the same by whomsoever supplied; and in such a case how can a purchaser properly regard himself as a "creature" of the firm who supplied the seeds?

Mr. Bartrum also complains of "paying too dearly for exercising his right of private judgment" in one sentence, and in another he states the additional cost was incurred "because more seeds were sent in each packet than he required." No doubt the quantities ordered were sent, and a seedsman can hardly be blamed for executing an order correctly. The "judgment" of the purchaser appears to have been at fault. In seeking a remedy your correspondent asks if he should "order by the ounce." Order what? An ounce of Celery seed, for instance, might be too much, and an ounce of Onion seed not sufficient for his garden and for raising produce for his family. It appears to me as a gardener that Mr. Bartrum has either said too much or not enough on the question which perplexes him. There are many, no doubt, willing to help him, but it is not easy for them to do so effectively as the matter now stands.

For many years I have had to supply a family of twenty persons with vegetables, and it has been incumbent on me to do so as economically as possible. I have twice purchased collections of seeds, but good as they were they did not satisfy me. There were too much of some and not enough of other seeds. I have found the best results from making my own selection; and by having regard to the price of the different varieties, and knowing exactly what were required of each, the aggregate cost has not been appreciably greater, while the returns have been decidedly better than by relying on "collections," and being troubled with the consequent waste of surplus seeds on the one hand and shortcomings on the other. It would have been perfectly easy for me to have spent four guineas instead of two and have no more seeds nor useful crops, but exercising my right of "private judgment" nothing of this kind occurred, or most certainly the rector would have deemed my judgment faulty.

No one can well select seeds for another, at least it would be impossible for anyone to select them in my case, for the simple reason that some things are scarcely wanted to which others attach importance; but on knowing the extent of ground and number of persons to supply with vegetables, an approximate idea can be formed of the quantity of seeds that will be needed.

My vegetable seed bill has never exceeded £3. When I tried a two-guinea "collection" it was quite insufficient, and a three-guinea one did not greatly improve matters, as there was so much seed that could not be utilised, and the varieties of Peas, for instance, were not satisfactory. I now leave the "collections" for amateurs who are not acquainted with the varieties that are sent, or are not particular about them so long as they can get as much as possible for their money. For such persons the ready-made packages are both cheap and useful.

The question of Peas, as submitted by Mr. Bartrum, is very much a question of soil. In the soil at my disposal Veitch's Perfection does not flourish, nor are any dwarf Peas profitable. With three varieties—William I., Champion of England, and Ne Plus Ultra—I can have Peas as long as they are procurable, and I think as good in quality as is producible. It is quite certain I could not obtain an equally satisfactory supply from the varieties Mr. Bartrum has submitted. Hundredfold is very productive and good in colour, but so inferior in quality that I have long since discarded it. I fail also to see the exercise of sound judgment in having three varieties of early Peas if a supply of the best quality is the only object.

Another word. Mr. Bartrum speaks about his gardeners. If I were in the fortunate position of a gentleman keeping gardeners, I should expect one of them at least to be competent to select seeds to the best advantage both in an economical and alimentary

point of view for stocking my garden. My rector once, with the object of reducing expenditure, made his own selection of seeds, but it only ended in reducing the supply of good vegetables. He has since left the selection to myself, reserving to himself his undoubted right, with which I most cheerfully comply, of discussing the list with me before the order is transmitted. It is thus, we think, we get the best return at the lowest possible cost. I have always felt it my duty to strive as earnestly as my employer to "keep the bills down," and this has proved sound policy, for since adopting it I have been encouraged by a "double rise" in wages without the payer of them, I trust, being a penny the poorer.—A PARSON'S GARDENER.

ON BUDDING AND GRAFTING: OR THE INFLUENCE OF THE STOCK UPON THE SCION AND VICE VERSA.

[Read at a meeting of the North of Scotland Horticultural Association at Aberdeen on August 18th, 1882.]

IN presenting this paper to the members of the North of Scotland Horticultural Association, I would observe that I do so with some diffidence. It must not be considered by any means to be original or even exhaustive; the subject is so vast, so full of interest, and so imperfectly understood, that I can only skim over the surface by a recitation of some facts that have come under my own observation and that of others from time to time, leaving it with you for general discussion. I have selected this subject mainly with a desire to direct the attention, especially of the younger members of your Association, to the great importance of correct observation and research, with a careful noting of facts as they may occur. It is in this way, and in this way only, that the great truths of Nature can be elucidated, and in our search after the why and the wherefore some rays of light may appear. This subject is one—if ever it will be thoroughly understood, will only be so by the careful accumulation of facts, and in this way everyone may aid. It is a subject in which I have not been altogether idle, and one in which I have for many years taken a great amount of interest.

The art of grafting seems to have been known from the very earliest times. We read in Scripture, in the eleventh chapter of St. Paul's Epistle to the Romans, twenty-fourth verse, "For if thou wert cut out of the Olive tree which is wild by nature, and were grafted contrary to nature into a good Olive tree, how much more shall these, which be the natural branches, be grafted into their own Olive tree." Pliny, Aristotle, and others of the ancient philosophers also speak of grafting; but as far as can be gleaned the principles appear to have been very imperfectly understood. The practice seems to have been to engraft the wild into the garden tree to promote fruitfulness, &c. We also read in old books absurd stories of Roses becoming black by being grafted on the Black Currant (this is even vouched for by some to the present time), and that the blood-red Oranges derive their colour through being grafted on the Pomegranate; and Virgil it is that speaks of Plum trees bearing Cornels, and Apples, Pears, &c., and in Columella it is asserted that the Vine may be grafted on the Fig—a declaration the impossibility of which had to be formally proved in the Jardin des Plantes, Paris, by the Director, M. Thouin, not a great many years ago.

It is a universal law of Nature that no plants will engraft on each other which do not belong to the same natural order. Even species which are distantly related cannot be united to each other. We cannot graft an Apple on a Plum or a Rose upon a Thorn. For any organic union to take place there must be a great similarity in the organisation and secretions of the plants to be united. That similarity exists between the Apple and the Crab and between the Peach and Plum, consequently they take on each other. It does not exist between the Apple and Plum. If, then, there is this physiological impossibility of uniting plants of the same natural order, the belonging to which necessarily implies a great similarity of structure and constitution, how can it be possible in the case of plants of different natural orders, which necessarily implies a great dissimilarity of structure, &c.? Mistletoe, being a parasite, is an exception. Animals of different species mix not together, and what is true of animals is true of plants.

The merely mechanical operations of budding and grafting need not be here discussed—the physiological principles to be studied are the same. The cutting, or portion cut off, forms the bud or scion, as the case may be, and the rooted plant on which it is worked the stock. The operations in both budding and grafting are performed whilst the sap is in motion, or, in other words, when the tissues are in a forming state. It is these tissues which are formed by the cells of the cambium, which lies between the surface of the alburnum and the inner bark coming in contact that effect the union. In grafting, be it noted that wood will not join to wood however carefully fitted, neither will bark to bark, the bark being a part already

formed; not even the inner bark, although nearly all gardening books that treat of the subject say "it is on the junction of the inner barks that success depends." This is true only to the extent, that if the inner barks are fitted the substances immediately below will be also in contact.

PLANTS MAY BE GRAFTED ON ROOTS OR PIECES OF ROOTS.

Grafting may also be performed on the roots of plants, pieces of the roots being used, for that which hinders the growth of pieces of root into young branches is merely the want of buds. The difference between the internal organisation of a root and a branch is very trifling.

Mr. Knight was the first physiologist who showed the possibility of grafting on roots, an account of which was given to the Horticultural Society in 1811, and he at the same time suggested the possibility of the practice being applied to scarce herbaceous plants, Dahlias, &c. It is now much practised for Clematis, Roses, Pæonias, and similar plants.

THE OBJECTS OF BUDDING AND GRAFTING.

The direct object of either budding or grafting is—see Lindley's "Theory of Horticulture," which should be carefully studied by every gardener—to multiply a given species or variety more readily than it could be done by any other means. If this, however, were the only purpose of the cultivator the stock that is most readily procurable would be obviously the best. Thus it was the ordinary practice of nurserymen to take the common Plum as a stock for Peaches and Apricots, the wild Pear and the Crab for Pears and Apples, and so on. Mere propagation is, however, not the only object of the grafter; it is to secure a permanent union between the stock and the scion, so that the new plant may grow as freely as if it were on its own roots under the most favourable circumstances.

THE STOCK INFLUENCES THE SCION. ITS CONSEQUENT IMPORTANCE.

The influence of the stock upon the scion is manifested in a great variety of ways, arising chiefly, but not entirely so, from the stock supplying a greater or less amount of vigour to the scion than it would obtain on its own roots.

Many plants, such as the Apple and Pear, bud or graft freely, but are difficult to strike from cuttings. Others, also, that are naturally delicate become strong by being worked on robust stocks. The choice of stocks whereon to graft a given plant is therefore one of considerable importance, and the propagation of stocks for specific purposes is now, instead of being left to chance, a speciality of many nurseries. The time has gone by for using promiscuous stocks for our fruit trees, and the planter now—with the knowledge there is of stocks, and the enormous influence they exercise—should be particular in obtaining those that are most suitable for his requirements. Some pomologists, notably in America, maintain that grafting has to a certain extent extended the varieties of our fruits, and is made to account for the great variations that are so observable in some varieties.

Bearing on this part of the subject I have collected from various sources well-authenticated examples, or records of certain influences as illustrations.

A.—STOCKS INDUCE EARLY FLOWERING—i.e., IMPART A TENDENCY TO FLOWER SOON.

1. In 1878 I grafted in the gardens at Chiswick corresponding stocks of the French Paradise, Doucin, and Crab Apple stocks with Blenheim Orange Apple. The following year those on the French Paradise and Doucin flowered freely, and every succeeding year. Those on the Crab did not flower until the third year. In the four years the number of flowers on the French Paradise was 189, on the Doucin 254, and on the Crab 23. There were two examples of each, and all in very good health.

2. Pears grafted on the Quince flower much sooner than do those on the Pear stock.

3. Seedling fruit trees, which frequently grow to a great size and are years old before fruiting, come into bearing much earlier by being grafted than if allowed to do so on their own roots. Mr. Rivers was thus enabled to fruit his many seedlings much earlier than he would otherwise have done.

4. A scion taken from a young tree and grafted on a mature tree bears sooner than if left to itself.

5. The Catillae Pear always bears more profusely grafted on a branch of a large tree than by itself.

B.—STOCKS RETARD FLOWERING.

1. Grafting the Pear on the Mountain Ash is practised in Nassau, and is said to retard the blossoming of the trees, thus enabling them to escape spring frosts. On the other hand, Dr. Lindley states that on the Mountain Ash the Pear bears earlier.

2. The Court Pendu Plat Apple, which is so well known for its late-flowering habit, is recommended by many as likely to prove an excellent stock for retarding the flowering of Apples in spring.

C.—STOCKS ALTER THE CHARACTER AND THE QUALITY OF THE FRUIT.

1. Pears grafted on the Quince and on the Thorn are often very different in quality to those worked on the Pear stock. Generally more gritty and drier in texture.

2. There are cases reported where a different kind of Apple has started from a grafted tree.

3. A gardener at Grenoble grafted the Pears Deux Yeux and St. Pierre on the common Hawthorn. The fruit proved very similar to Haws.

4. Mr. Knight mentions two trees of the Aeton Scott Peach, the one growing upon the native stock, the other upon the Plum. That growing upon the Plum produced fruit much larger in size, redder in colour, with coarser pulp, and of superior quality to that of the others.

5. Muscat Hamburg Grape grafted by myself on a coarse late Spanish variety produced fruit so entirely different and inferior to the original variety that the members of the Fruit Committee were unable to recognise it. It still maintains the same character.

6. Black Hamburg Grape grafted by myself on a small variety named Blussard Noir produced small bunches and berries similar to the stock—very inferior.

7. Gros Guillaume Grape grafted at Chiswick on the Frankenthal produced bunches and berries so large and so resembling Frankenthal as to be mistaken for that variety. This influence is not continued.

8. Mr. Thomson, Drumlanrig, records that the Gros Guillaume Grape grafted on the Muscat of Alexandria bears berries superior and fruits more freely than those grafted on the Black Hamburg.

9. Mr. Fenn, late of Woodstock, grafted Ribston Pippin Apples upon Blenheim Orange. The fruit produced was, both in quality and appearance, intermediate between the two varieties as exhibited before the Fruit Committee. I procured grafts, worked them at Chiswick, and submitted the produce to the Fruit Committee again, when the minute recorded was "Distinct, but inferior to both stock and scion."

10. In the "Theory of Horticulture" it is recorded of a Mr. Billington that he budded a Bergamot and a Swan's Egg Pear on a Jargonelle, which produced fruit much larger and better in quality than he had ever before seen it. Those budded on the Hawthorn produced fruit not half the size, and quite gritty.

11. Joseph Bailey of Dedham, U.S.A., states that if he wants a pleasant Porter Apple he grafts on a sweet variety. The Porter is a sour Apple.

D.—STOCKS PROMOTE A GREATER HARDINESS AND VIGOUR.

1. The Muscat Hamburg Grape has been found to fruit and grow more freely, with a less tendency to shank, &c., when grafted on the Black Hamburg.

2. The Apricot succeeds better on its own roots or upon seedling Apricot stocks than when worked on the Plum.

3. Peaches worked on the Plum are far more hardy and vigorous than those worked on the Almond; the latter suffer from the cold, and have that affection termed "the yellows."—A. F. BARRON, Chiswick.

(To be continued.)

LOBELIA CARDINALIS.

THIS is a very old plant, having been known in this country for over 250 years, and the first account we have of it is in Parkinson's "Paradisus," where he says he "received plants of it from France for his garden, and that it groweth neere the river of Canada where the French plantation in America is seated;" and in 1795 a figure was given of it in "Curtis's Botanical Magazine." This plant was then, as now, highly esteemed, as Parkinson calls it "the grand rich crimson Cardinal's Flower;" and this is no meaningless epithet, for the plant is a most brilliant one, and well adapted for border cultivation, quite hardy in many parts of this country, and only requires a sheltered place in the colder parts, and when in a proper position as to soil and moisture it is extremely showy and desirable, not only on account of the high colouring of the flowers, but their persistency and the freeness in which they are produced. It frequently happens that substitutes are sent out for the true plant in the form of varieties with high-coloured leaves, probably some variety of *L. fulgens* which are not hardy with us; hence we frequently hear that *L. cardinalis* is not hardy, when in reality the true form was not under treatment.

It is a hardy herbaceous perennial, growing 3 or 4 feet high under favourable circumstances, with large coarse broadly lanceolate leaves with serrated edges, green; whereas the foliage of the plant often sold for *L. cardinalis* is deep crimson. The stems are terminated with the flower spike, with flowers about $1\frac{1}{2}$ inch long from tip to tip of a peculiar form, and intensely deep red colours; lateral flower spikes are also produced, which greatly lengthen the blooming period. The flowers appear from July to October, and the plant is a native of the northern and eastern United States, being distributed over a very wide area.

It should be planted in a damp situation in good rich loamy soil, rather stiff, as it speedily dies in positions at all dry and loose. It does well in the bog garden. I have seen it finer in such than in any position, and by the margins of lakes and ponds it thrives well. This plant is easily propagated by striking the young shoots in spring, or by cuttings freely produced in the leaf axils during summer, and struck in a cold frame, or from seed, which being small should be carefully sown during May or June in pots and placed in a cold frame. I have raised seedlings fairly well, observing the following items: Fill the pots with soil and water it freely, sprinkle the seed upon the surface, slightly cover it with silver sand, and place some fresh moss upon the surface, which keeps the seed moist and shaded, removing the moss directly after germination.—N.



THE big Gooseberry season being over, we are threatened by an incursion of COLORADO BEETLES. A Colorado beetle having been found on board the Guion steamer "Wisconsin" from New York, the Privy Council were communicated with, and gave orders that the insect should at once be killed and forwarded to Whitehall.

— WE are informed that the popular work, "THE FERN WORLD," by Mr. Francis George Heath, author of "Autumnal Leaves," has just reached its seventh edition.

— MR. S. L. BOURCHIER, Crosby, near Liverpool, writes:—"Mr. Iggulden in his interesting note on DOUBLE ZONAL PELARGONIUMS has omitted the best of all—namely, Charles Darwin, very deep rich purple, with orange shade in upper petals; fine form and size, habit and freedom of blooming equal to any single. Candidissima plena is much the best white, as under no circumstances is it ever even faintly tinged pink."

— A CORRESPONDENT writes respecting ALLIUM SACCUFERUM as follows:—"This is an extremely pretty pink-flowered species, received in the Cambridge Botanic Garden from Dr. Regel. The heads are perfectly globular and dense, and a number together form an attractive tuft a foot high. The leaves about equal the flowers in height, and are slender and graceful. A pure white variety has come from seed, and is being attended to. The bulb of this species is long and narrow. It appears to be rare in gardens. In the same garden the beautiful *Lilium longiflorum* is one of the most suitable Lilies for the dry soil. No other kind does better, and this without any preparation succeeds well."

— THE schedule of the SOUTH SHIELDS CHRYSANTHEMUM AND WINTER FLOWER SHOW states that the Exhibition of the present year will be held in the Public Library Hall, South Shields, on November 29th and 30th, when prizes will be offered in thirty classes for Chrysanthemums, both specimens and cut blooms, miscellaneous plants, and Grapes. In one of the regulations relating to the Chrysanthemum portion of the schedule it is stated that "for the guidance of exhibitors Cannell's catalogue will be the standard."

— MR. GEORGE BUNYARD of Maidstone has sent us a dish of BUNYARD'S BROAD-PODDER DWARF KIDNEY BEAN, which is

claimed to be "the best flavoured in cultivation." The pods were not particularly attractive, and were fully too old for cooking, the beans showing prominently; yet, notwithstanding their apparent want of crispness, they were when prepared for table of excellent quality—tender, buttery, and possessing a flavour that is not possessed by all Dwarf Kidney Beans, and which is highly agreeable. Judging by the sample sent this is not a show variety, and we know nothing relative to the habit and productiveness of the plants.

— PERHAPS nowhere is what may be termed DOMESTIC FLORICULTURE practised more earnestly than in the suburbs of London, and local societies are established to give encouragement to window gardening, and to render the surroundings of homes enjoyable. One of the best-conducted of these that we have seen is the SHAFTESBURY PARK GARDEN IMPROVEMENT SOCIETY, the annual Show of which was held last Saturday. Besides the competition in the classes, valuable contributions of plants were kindly and generously sent by Messrs. Veitch & Sons, J. Laing & Co., and of cut flowers by Messrs. C. Turner of Slough and Cannell & Son of Swanley. The single Dahlias from Slough were particularly handsome, and being arranged on stands with foliage and buds as cut they had a much better effect than when staged in the usual manner. The Swanley Petunias commanded much attention. Messrs. Veitch's plants included specimens of a number of their novelties, forming an important portion of the Show. The prizes consisted of various well-selected articles of a useful or ornamental character.

— MR. GEORGE BOOTHBY, writing from Louth, states:—"Mr. Luckhurst does not speak a word too much in praise of VIOLET DEVONIENSIS. Here in East Lincolnshire, whilst the rest of the kingdom has been complaining for some weeks past of an excess of rain, we have been almost suffering from a want of it; consequently such plants as autumn-blooming Violets are not in a very floriferous state at present, but *V. Devoniensis* is in full bloom as usual. I generally find it and a seedling of mine, *V. Floribunda*, the first to bloom, and New York has sometimes been as early."

— MR. WILLIAM CONNELLY, Leagrims, writes:—"I was glad to see the old favourite CATSHEAD APPLE brought under notice, and can fully endorse all that has been said in its favour on page 157. I have known it as long as I have known what an Apple was. It is a general favourite in Herefordshire, so much so that if a true old Herefordian had a dozen trees in his garden and one of them was a Catshead, he would prize it more than all the rest on account of its large size and good keeping qualities. It is principally used by the farmers and cottagers in country districts for making Apple dumplings and Apple bobs. An Apple bob is made exactly the same as a dumpling, only it is baked instead of boiled; and in establishments where kitchen Apples are in great demand this good old variety should be cultivated."

— RELATIVE to the HOP HARVEST, Mr. E. Doust, Hop-factor, has stated in a daily paper that "There has not been a year in the memory of any living man in which a less quantity of Hops was grown than is likely to be grown this year. It is certain that there are thousands of acres that never will be picked at all; whole plantations can bring nothing but ruin on the luckless planters. Almost the only exception to this dreary aspect is where the planters have thoroughly washed to death the insect pests; and even this effort, where it has not been efficiently done, has proved a failure, and, what is more, just now we are compelled to hear that the mould has set in even upon many of those plantations where the insect pests had been destroyed."

— A CORRESPONDENT has given the following brief but dismal account of THE IRISH CROPS:—"In the north-west of Ireland the crops are in a frightful condition, hay lying cut in

the fields soaked in water. Potatoes are suffering from blight. It is feared that unless there is dry weather shortly a famine will occur this year. The mountainous parts are in a worse condition than the lowlands."

— "E. L. R.," referring to Mr. Wolley Dod's article, says "It is no wonder he should speak of *CAMPANULA HEDERACEA* as a native gem. I purchased a small plant and placed it in a rockery, where it died; but the following year the *Campanula* was seen in our lawn, where it spreads yearly and is lovely. My only trouble is the scythe—no gardener can recollect that this portion of the lawn is not to be mown after June. It grew on a damp lawn, but this year appears plentifully in the driest part over a flue, and flowers in a dwarfer state. *Sibthorpia europæa* has naturalised itself on the same lawn, though only on the damp part. It never flowers there. I am unacquainted with the *Anagallis* named, but shall add it to the above. Where can seed be procured of the *Chrysanthemum segetum* as improved by Dr. Marsh, and named on page 146?"

— RELATIVE to our report of the BRICK-KILN CASE on page 150 Mr. Foster, the complainant, informs us that "the jury stopped the case, consequently my witnesses, Mr. Pennell, Mr. Barron, two from the Royal Agricultural College, Cirencester, and several from this neighbourhood, were not called. The chemical evidence we had would have proved that 10 tons of sulphur was burnt out of the clay used in a year in making bricks in the defendant's brickyard. It may not have had any influence on the verdict, but it would have been an interesting piece of evidence." It would not only have been interesting but important. The noxious fumes from brick-kilns are beyond question most injurious, and even deadly, to trees and shrubs near them, and Mr. Foster has done good service in persevering, even though a former verdict was against him, and winning his case. An experiment that we suggested of applying dilute sulphuric acid to the foliage produced the same results as the acid deposited on the leaves from the kilns. One part of acid to forty parts of water killed the specimens. One part acid to one hundred of water applied to one specimen, and one part acid to 150 water sprinkled on another, produced at once effect exactly similar to those produced more slowly, but not less certainly, by acid from the kilns. Mr. Matthews, the complainant's counsel, stated

"Both the clay and the coal when burnt gave off sulphur, and the effect of the burning was to cause the sulphur to combine with the oxygen of the air, and then it formed two very virulent acid gases, one called sulphuric acid, and the other sulphurous acid, the difference being that the sulphuric acid had one more atom of oxygen than the other. Sulphuric acid was commonly known as oil of vitriol, and was highly corrosive. When the wind carried this amiable gas, particularly in damp weather, it became deposited on the plants, which were burnt into holes, just as oil of vitriol would burn a coat sleeve. Repeated doses of these fumes coming from the brick kilns injured the plants so as ultimately to kill them. Some trees are more susceptible than others, and some would die while others would not. The *Coniferae*, he believed, were the most susceptible, and the Laurels suffered very severely. There were very large quantities of plants in a nursery ground, and in 1881 there were 130,000 bedded Larch, of which number no less than 40,000 were so damaged as to be unsaleable. Red Currants, Laurel, Limes, Austrian Pines, Cherries, Roses, and so on were injured in large numbers, and the damage amounted to no less than £200 in that one year."

We congratulate Mr. Foster on the results of the litigation.

— WE regret to have to record the DEATH OF MAJOR ABRAM BASS, which occurred at his residence, Moat Bank, Burton-on-Trent, on the 15th instant. Mr. Bass was a most estimable and benevolent man, and the products of his garden, which were always of superior quality, have graced the tables of his acquaintances and been of benefit in humbler homes, where such delicacies as it was in his power and disposition to give are so welcome during periods of sickness. A description of Mr. Bass's garden appeared in our issue of February 10th, 1876. The pride of the garden was the orchard house, and the pride of the house the

Apples grown in pots, which in appearance and quality have probably never been surpassed. In the condition of this house Mr. Bass, previous to the days of his infirmity, took active interest, and had a great measure of success in the production of choice fruit; in other respects, too, his garden was most enjoyable, and its pleasures were shared by many friends. He was 78 years of age.

CABBAGES, AND HOW TO GROW THEM.

THE average "Britisher" is very slow at improving upon anything. If there is work to be done he is the man to do it; but in the matter of "notions" he is considerably behind his go-ahead transatlantic cousin. These thoughts occurred to me on reading an interesting work bearing the above title, and the further thought occurred that by pointing out some of the more prominent "notions" contained therein help might be afforded to those who have an opportunity of adopting some similar ideas.

The author's description of what constitutes a Cabbage may be passed over, but it may be profitable to notice and make a running commentary on most of the other points, and just as they are set down in the little work before us.

The first thing is the selection of the soil, and our author prefers to follow Nature by either choosing a limy soil or making it so. At the same time he can grow Cabbages on any soil, but prefers that which is heavy. Wet undrained land, he says, produces "stump foot." When a choice can be made small-growing kinds are planted when the soil is thin, and any deep spot is kept for big-growing Drumheads. As the author refers only to field cultivation, possibly he may be better worth listening to than if he were dealing with the garden, especially since farmers are looking around for fresh openings.

"Should the soil be a heavy clay a deep fall ploughing is best, that the frosts of winter may disintegrate it; and should the plan be to raise an early crop, this end will be promoted by early ploughing in any soil, as the land will thereby be made drier in early spring." It should be borne in mind that this advice is given to Americans, and may not be suitable for us. To plough or dig up heavy clay in many districts in this country would have exactly the opposite effect from that described by Mr. Gregory, the author of the book. The subject is introduced here, as it is one that might be debated profitably, for many are of opinion that very great mistakes are made just in the season of digging, and much loss occasioned thereby. In America, when the frost sets in in the "fall" and continues till spring, there cannot be any doubt about the correctness of autumn turning of the soil, and the same may be said of any place where the frost is continuous during winter, or the rainfall little, but under different conditions it is a mistake.

"Any manure but hog manure for Cabbage. Barn manure, rotten kelp, night soil, guano, phosphates, wood ashes, fish, salt, glue waste, hen manure, slaughter-house refuse—I have used all these, and found them all good when properly applied. If pure hog manure be used it is apt to produce that corpulent enlargement of the roots known in different localities as 'stump-foot,' 'underground-head,' and 'finger-and-thumb.'" Has the use of this kind of manure been succeeded by like results in this country, or has the fact been overlooked? Often club-foot is to be seen, greatly to the chagrin, loss, and mystification of the cultivator. It is quite possible that such apparently inadequate causes may have been entirely overlooked, and if so, readers who have been afflicted may hereby find a clue. Recently a writer in this Journal related his success in preventing this troublesome disease by using lime rubbish freely. Mr. Gregory mentions several instances of a free use of lime and also wood ashes being a preventive, and specially notices the fact that in cottage gardens constantly treated with soapsuds Cabbages have been grown for many years quite free from "stump-foot." He considers that the alkalis present in the suds are the cause of this; but on a large scale the only safeguard is to plant yearly on a fresh spot, otherwise clubbing almost invariably follows. Considering that Cabbages naturally affect calcareous soil near the sea, we should be inclined to think that liberal applications of lime and common salt would be certain to keep off the pest. Certainly such applications are of decided advantage to Cabbage of all kinds, and Mr. Gregory's evidence inclines us to think that either or both would be found specifics.

The best manure for growing the largest and best Cabbages was a mixture of farmyard manure and night soil. This is quite in accordance with my experience, and attention is drawn to this fact, as in many densely populated districts such is to be had much below its real value. For many things it is too strong and

causes too rank a growth; but that can never be the case with ordinary Cabbages. The author sometimes ploughs in his manure, sometimes puts it on the soil and harrows it in, and, especially when the supply is short, applies it "in the hill." In this country "plowing-in" is the usual course, but we question its being equal to either of the other two plans, especially when autumn digging is practised. In the first place, even when ordinary digging is practised, the manure is put down too deep, and every drop of rain that passes through the soil carries it deeper or perhaps away altogether. Even under favourable circumstances seedlings or even strong plants may, and often do, languish and lose the season before the roots reach the manure. On the other hand, when manure is spread, preferably in frosty weather, over dug ground, and left there till the soil is dry and mixed with the upper few inches, the results are greatly different. This is especially the case with such concentrated manure as night soil, which by surface-manuring and forking afterwards are thoroughly distributed, instead of being buried in lumps so concentrated that only after the rains have dissipated their qualities can plant roots live near them, while the body of the soil suffers poverty and affords nothing. The other plan of applying the manure "in the hill" is by no means to be despised, especially when the supply is "from hand to mouth," as the saying is. It was from an old Irish labourer that I learned the lesson, and it certainly is worthy the attention of those short of manure.

In America it appears the seed is usually sown where the crop is to grow, although sometimes the seed is sown in beds, and the plants nursed on and afterwards transplanted. Sowing late Cabbages, Brussels Sprouts, &c., where they are to remain is a practice not altogether unknown in this country; but is not very widely practised, so far as I am aware. Mr. Gregory considers sowing the seed where the plants are to remain a much superior plan to nursing and transplanting. America, however, is not England, far less Scotland, in the matter of climate; and while with such usually spring-sown vegetables as Sprouts, Broccoli, or even Savoy, the system may be worth recommending and a fair trial, our summers are too short to allow of its being practised with the larger-growing Savoy and Drumhead Cabbages, and it is to the system of growing, preserving, and marketing these in America that I wish chiefly to refer.

Readers are informed that an ounce of seed "contains ten thousand seeds, but should not be relied upon to produce over two thousand plants." This is a better guide to novices than telling them that so much seed will be sufficient for sowing a bed so many feet square. We are also informed that Cabbage seed will keep good for four or five years, and that old gardeners prefer seed two or three years old.

In sowing the seed in beds the advice is to use very rich soil and to prick out the plants. This is sound advice. The difference between plants raised on rich soil—I refer, of course, to spring-reared plants—is often in the ultimate results equal to what follows a very heavy manuring, compared with what results from starvation. Generous nursing of plants and animals pays well: the opposite never does.

Planting under hot sunshine is condemned, and when it becomes absolutely necessary to plant during dry weather the making of deep holes to be filled with water, which, by capillary attraction, pervades the body of the soil without the danger of rapid evaporation, is recommended. Planting is also advised to be done towards sunset.

Attacks of the "fly" are warded off by dustings of wood ashes or quicklime; the "cutworm" is only kept at bay by being searched for and killed, or kept off by a funnel of paper round the stem of each plant, or by dropping a little wood ash round each—all rather tedious processes, and hardly applicable on the large scale. For the "louse"—aphis, I presume—there appears to be no cure except thoroughly good cultivation, irrigating if need be, and if possible. Caterpillars are to be disposed of by picking off the infested leaves and crushing the insects with the feet.

Summer cultivation consists of thoroughly hoeing, and should any heart-up prematurely "starting" is recommended—that is, loosening each plant with the fork. This is said to prevent hard-headed Cabbages bursting. As frequent loss occurs to market growers from this cause "starting" may be worthy attention; but I may be pardoned for refusing to put much faith in a process that has failed with us.

It is not necessary to say anything about the early spring or summer crop, as it is doubtful if anything is to be learned by our own growers in that direction; but there is something in the way they in America have of keeping up a winter and having a very early spring supply well worth dwelling on, for had the American practice been common here, instead of a famine of vegetables such as was experienced during some of our more recent winters,

an abundance—of Cabbages, at least—would have been forthcoming; and, instead of market gardeners and farmers losing heavily through the destruction of their winter vegetables by frost, fortunes might have been begun if not made.

The plan to which I refer is to have a regular crop of solid heads late in autumn, and to store these where they can be kept at once dry and free from frost. Drumheads are chosen for this purpose, but not the Drumheads common in this country. These, it is said, are at once too coarse, and do not produce heads of keeping quality. Among the sorts that are favourable for storing I may notice that Premium Flat Dutch, Stonemason, Marblehead Mammoth Drumhead (said to grow to the weight of 60 lbs. and to produce 60 tons an acre!) Fottler's Early Drumhead, and Cannonball. Among Savoy, Improved American.

The manner of keeping is varied according to the climate. Far south wet has to be guarded against, and consequently waterproof sheds are provided, inside of which the hard heads are packed closely after all loose leaves have been removed, but the roots retained. In the north, where frost is the enemy, furrows are made with the plough, and the Cabbages are stood heads down, stumps up, and covered over with earth, straw being added if necessary. On a smaller scale the heads are placed in pits something in the way Potatoes are kept in this country. These supplies are drawn upon during the winter or kept till spring, as best suits the market. Even Cabbages that are not headed in autumn may be turned to good account. It seems that when placed head up so deeply in the ground that the points of the leaves are level with the surface, so that no frost can reach the stems, and the tops protected, heads will form which in America sell wholesale at 4 cents (2d.) a pound. A few tons of Cabbages at that price would represent a good sum. "These refuse Cabbages realise 10 cents a piece," says Mr. Gregory. The hard heads usually sell at from 3 to 25 dollars per hundred. A shilling a-piece for Cabbages is enough to make a market gardener's mouth water!

There are many more points in the book, and all interested should refer to it for further information. The book is posted in America for 15 cents, and may be had from James J. H. Gregory, Marblehead, Massachusetts, U.S.A. To cover postage to this country an extra cent or two may be necessary.—SINGLE-HANDED.

ROYAL HORTICULTURAL SOCIETY. FLORAL COMMITTEE MEETING AT CHISWICK.

AUGUST 16TH, 1882.

THE Committee (G. F. Wilson, Esq., F.R.S., in the chair), inspected the collections of Achimenes, Tydeas, Verbenas, Heliotropes, &c., when the following awards were made. The names of those varieties that are printed in italics were granted first-class certificates, the others, not in italics, being recommended as worthy of culture.

VERBENAS.

Phlox (Cannell & Sons).—Plant of fine vigorous growth, very free-flowering; the trusses of medium size; flowers large, rosy crimson, with mauve ring round distinct white eye.

August Reuz (Cannell & Sons).—Free habit, free-flowering; the trusses of medium size; flowers rosy scarlet with distinct yellowish eye. A showy variety.

Kentish Beauty (Cannell & Sons).—Plant of vigorous growth, free-flowering; trusses and flowers large, well displayed, of a beautiful rosy claret with pure white eye.

AGERATUM.

Malvern Beauty (Cannell & Sons).—Close compact growth, free-flowering; the flowers well displayed, pale blue. A fine variety.

IVY-LEAVED PELARGONIUM.

Rossini (Lemoine).—A free-growing variety. Stem short-jointed; the trusses of medium size; individual flowers very large, of a beautiful magenta scarlet. A very fine addition to the single-flowered section.

HELIOTROPES.

Bouquet Perfume (Lemoine).—A dwarf and compact free-flowering variety; the trusses large, well displayed; flowers dark lilac blue. A good variety for pot culture.

Madame P. Athles (Lemoine).—Vigorous habit, free-flowering; the trusses large and well displayed. Dark blue.

PENTSTEMON.

Virginale (Lemoine).—A variety of fine free habit with pure white flowers.

TROPEOLUM.

Bedfont Rival (Dean).—A fine free-flowering variety, with flowers of an intense orange-scarlet colour.

ACHIMENES.

The collection includes about a hundred sorts, from which the

following were selected as the best in their respective classes, and received three marks of merit:—

Margarittæ (Vallerand).—Pure white, fine, large-flowered. Good habit.

Mauve Queen (Vallerand).—Mauve, with orange-spotted eye; tube shaded orange.

Longiflora macrantha (Vallerand).—Pale blue; tube shaded orange; large showy flowers.

Longiflora (Vallerand).—Blue; more compact in habit than the above; leaves reddish beneath.

Mauve Perfection (Vallerand and Van Houtte).—Mauve purple, veined with crimson; fine large flowers; very free. This was received from Van Houtte under the names of Cassiopée and Mauve Perfection.

Ambroise Verschaffelt (Vallerand).—White, shaded mauve, deeply veined with purple; lemon eye. From Van Houtte under the name of Diamond.

Sir Treherne Thomas (Vallerand and Van Houtte).—Rosy purple, with orange-spotted eye; leaves reddish beneath.

Floribunda (Vallerand).—Deep violet purple. Very dwarf.

Carl Wolfarth (Van Houtte and Vallerand).—Violet purple; pale yellow eye, spotted with red; very free-flowering. Frau Schiller (Van Houtte), Pink Perfection (Van Houtte), and Baumann (Van Houtte), are the same as the above.

Diadem (Vallerand).—Bright rosy scarlet; yellow eye; lobes of flower serrated.

Unique (Vallerand).—Bright magenta; orange-spotted eye.

Firefly (Vallerand).—Bright scarlet, with orange eye.

The following received two marks of merit:—

Celestial (Vallerand).—White, slightly veined with mauve; mauve eye.

Cherub (Vallerand).—White, with mauve eye; dwarf habit; leaves brownish beneath.

Dentonia (Vallerand).—Pale mauve with purple veins.

Longiflora picta. —Rosy lilac; large flowers.

Tubiflora (Vallerand).—Copper red, with orange centre; long orange tube.

Georgiana (Van Houtte).—Bright scarlet; orange throat; long open tube, and small lobes.

Dr. Hopft (Vallerand).—White, with mauve centre. Dwarf and very free-flowering.

Ami Van Houtte (Vallerand and Van Houtte).—Deep violet blue; throat yellow, with dark spots; leaves pale green.

Liebmann (Van Houtte).—Mauve purple, shaded with white in centre.

Grandiflora (Vallerand).—Rosy lilac, white centre.

Masterpiece (Vallerand and Van Houtte).—Violet purple; white throat; large brownish leaves.

Admiration (Vallerand and Van Houtte).—Rosy purple; whitish throat; rough brown leaves.

Hofgartner Neuner (Van Houtte).—Magenta rose; orange-spotted eye.

Dazzle (Vallerand).—Bright orange scarlet; small yellow eye.

Hofgartner Wendscanch (Vallerand and Van Houtte).—Violet purple; small flowers; compact habit.

TYDEAS.

Cybèle (Vallerand).—Soft rosy carmine; lobes spotted and striped with crimson.

Magicien (Vallerand).—Deep orange scarlet; lobes spotted and striped with deep crimson.

Chiron (Vallerand).—Bright scarlet; lobes spotted and striped with crimson.

Harlequin (Vallerand).—Tube purple; lobes greenish yellow, heavily spotted with purple.

Venosa (Van Houtte).—Tube red; lobes soft carmine, spotted and striped with red.

The two following Gesneriaceous plants were also regarded as meritorious:

Rosonowia ornata (Van Houtte).—Creamy white covered with rose lines on the tube and on the two superior lobes; interior striped with purple.

Gesneria macrantha (Van Houtte).

MARKET GARDENING AND FRUIT-GROWING.—Market gardening for farmers has been strongly advocated as a partial remedy for the present distress; and within certain limits, and upon the better class of soils, this may prove a great auxiliary. But the danger of relying too much upon the production of vegetables has been shown by the autumn of 1880, when it was impossible to dispose of the produce at anything like remunerative prices. The perishable nature of the goods and heavy carriage are very much against the success of the enterprise, when attempted to be carried on in places remote from the centres of consumption. But in the direction of fruit-growing there is boundless scope for the farmer. Home-grown produce, coming fresh into the market, has always carried away the prize when opposed to the dried-up American Apples, Jersey Grapes, and the indifferent Plums of Germany and the Netherlands. Black Currants, Raspberries, Gooseberries, and some other fruits make immediate returns, and it does not require a very long lease to reap

the benefit of Plums of all kinds planted in hedgerows and in selected spots or odd corners of the farm.—(*The Agricultural Depression, and How to Meet It.*)

REVIEW OF BOOK.

A Dictionary of Economic Plants. By JOHN SMITH, A.L.S. Demy-8vo. London, Macmillan & Co.

THE veteran ex-Curator of the Royal Gardens, Kew, has added another work to those which have already gained him considerable fame as an author, and it appears probable that his latest production will become even more popular. The study of economic botany has been greatly extended in recent years, as it is a division of the science which interests a far larger proportion of persons than structural or systematic botany. In fact, a knowledge of the uses and properties of plants, or the sources of the numerous vegetable products employed in this country, has become an important part of general education; and to persons engaged in commercial pursuits, particularly in connection with the importation of colonial and other produce, it is almost indispensable. The works, however, that are available and suitable for consultation generally are by no means numerous, and it was on this account that the "Domestic Botany" published by Mr. John Smith in 1871 was well received, as it gave in a popular, concise, but clear form a description of the principal plants notable for their uses. This work principally comprised a portion of the materials collected by the late Mr. Alexander Smith, as the basis for an exhaustive treatise on economic and commercial botany, the completion of which was prevented by his early decease. Such of these as were deemed suitable for a popular work were selected by his father, and, together with a brief review of the structural characters of the vegetable world, were published, as before stated, under the title of "Domestic Botany." The lapse of ten years rendered a revision necessary; but instead of issuing another edition of the original work it was decided to give it a different form, arranging the various products for convenience of reference under their popular names in alphabetical order, instead of in the natural families, as had been previously adopted. As a result we have the work now being noticed, which in 449 pages contains descriptions and references to about 1600 subjects included in 1163 genera, thus comprising by far the greater portion of the most important plants that possess really useful properties. Though no elaborate research has been attempted, a large amount of information is conveyed in clear but concise language, and a most commendable accuracy, both as regards facts and nomenclature, distinguishes the whole work. As examples of the method adopted we submit the following quotations:—

CRANBERRY (*Vaccinium Oxycoccus* and *V. macrocarpum*), slender trailing-stemmed, small-leaved shrubs, belonging to the Cranberry family (*Vacciniaceæ*). They are natives of this country and North America, growing in boggy heaths. The fruits are berries about the size of Currants, which are collected for preserving and for making tarts. *V. macrocarpum* has the largest fruit, and is imported from North America, where it is extensively cultivated, especially near Berlin, Wisconsin, where about one-fourth of 750 acres of marsh is under cultivation. It is flooded during winter; in the spring the water is drained off, and in October picking commences. Sometimes there are as many as three thousand pickers employed. The ground is so marshy that a wooden railway is laid from the centre of the operations to convey the berries in trucks to the warehouse, where they are laid on the upper floor, and on the lower are large fanning mills, to which the berries are let down in hoppers, and are thus cleaned from leaves and other impurities. 35,000 bushels are sometimes collected from this spot in one season, the greatest quantity of which is sent to the Chicago market. This quantity is far surpassed in New Jersey, where in favourable seasons 125,000 bushels are collected, valued at £60,000.

INDIAN FIG.—*Opuntia Tuna* and *O. Ficus-indica* and other species of the Cactus family (*Cactaceæ*) have received the names of Indian Figs or Prickly Pears. They are common throughout the tropical and subtropical countries of America, and since the discovery of that continent they have become naturalised in southern Europe, many countries of Africa and Asia, even growing on the old walls of Jerusalem. Their stems when young are fleshy and nearly flat, but in age they become cylindrical, hard, and branched; the branches consist of oblong fleshy joints superposed upon one another, smooth, or more generally furnished with strong spines. They seldom exceed a height of 10 to 12 feet, but Humboldt says he saw at Cumana "erect Cactæ (*Cereus*) and *Opuntias* 30 to 40 feet high, 4 feet 9 inches in circumference, and covered with lichens, and the wood becomes so hard from age that it resists for centuries both heat and moisture." They make impenetrable hedges. Their fruits are pear or egg-shaped, flat at the top, 2 to 3 inches in length, covered with tufts of small spines, and are of a green, yellow, or red colour; they are wholesome, and are esteemed for their cooling juice. They abound on the lava slopes of Mount Etna, and are the pioneers of cultivation, their roots penetrating and breaking up the lava. They naturally decay in time,

forming a rich vegetable mould on which Vines are planted. The fruit is collected and sold in large quantities in the markets, forming an extensive article of food to the inhabitants. They contain saccharine matter; their juice is used for colouring confectionery, and in Mexico a drink called colinche is prepared from them. The plants grow abundantly in other parts of South Europe and in Algeria, from which place the fruits are imported into this country. When old the fibrous parts of the joints of the stems become hard and firm, and are made into ornamental articles.

RICE PAPER.—It might be supposed that the beautiful substance called rice paper was made of some part of the Rice plant, but such is not the case; the name is quite misleading. It was early ascertained to be a vegetable substance, but the plant producing it was long unknown to botanists, and on inquiry being made respecting it, fanciful figures and descriptions were given of it by the Chinese. Not long after the commerce of China was opened to Europe it was ascertained that it came from the Island of Formosa, which led Sir John Bowring, then Governor of Hong-Kong, to obtain plants of it from that island, one of which arrived safely at Kew in 1853, and flowered in 1855. From this it was proved to be *Aralia papyrifera*, now known as *Fatsia papyrifera*. It is a small tree of the Ivy family (*Araliaceæ*), attaining a height of 10 to 12 feet, with a stem 3 to 4 inches in diameter, the interior being full of white pith like that of the Elder. It has soft downy palmate leaves, something like those of the Plane tree, growing on long footstalks, and produces a somewhat erect paniced raceme of small flowers. The tree is cut down in order to obtain the pith, which averages, according to size, about 1 inch in diameter. It is divided into pieces about 3 inches in length, and by the aid of a lath and the use of a sharp instrument is cut into very thin rolls, and then becomes rice paper. It is extensively used by the Chinese for drawing figures of plants and animals, and also for making artificial flowers. The plant requires the protection of a greenhouse in this country, and propagates freely from suckers. It is now common in Australia and other countries.

It need only be further added that the work is excellently printed on good paper, and neatly bound in green cloth.

THE LIVERPOOL HORTICULTURAL COMPANY'S GROUNDS (JOHN COWAN, LIMITED.)

MOST persons have heard of The Vineyard at Garston, formed by Mr. Meredith and long carried on by him successfully, but which some time since was bought by Mr. Cowan, and afterwards a company was formed by some Liverpool merchants to carry on the business. The nursery is pleasantly situated on rising ground overlooking the Mersey, and I was surprised to find quite a town of glass. I think there are thirty-six houses, besides pits and frames, houses from 50 to 240 feet long. I cannot trespass on the pages of the *Journal of Horticulture* to give details of every house, but may remark that Grape-growing is not so largely followed now as formerly, more attention being paid to plant-growing. Still, one of the first houses I went into was a long lean-to with a division in the centre, and planted with one Madresfield Court Vine, which was bearing fine Grapes not fully ripe but swelling well. This one Vine filled the two divisions, and by turning on the heat at one end first it caused the Grapes to be three or four weeks in advance of those at the other end where the Vine was planted. In another house were some magnificent bunches of Gros Guillaume, the true variety, as sent out in 1850 from Stratford-on-Avon. It is most distinct from another variety I often meet with under that name. In other large houses were some good Muscats and Black Hamburgs, while Vines in pots are growing in large numbers—strong healthy plants 7 and 8 feet high. In the famous large house, 240 feet long by 25 feet wide, were three thousand fine young Vines; some Foster's Seedlings were showing fine bunches of fruit on the laterals. On the north side of these Vines I observed two men potting some thousands of seedling Ferns—*Pteris serrulata*—one would think enough to supply the whole of the country. My guide informed me this Fern is in great demand in the Liverpool market. There were also two new houses about 150 feet long each, with glass sides over 6 feet high, built expressly for growing young Vines.

Within the last year and half attention has been paid to Roses, especially Teas; house after house is filled with all the best kinds. To give some idea of the fine growth they are making I may mention that some young Gloire de Dijons worked last spring were over 10 feet high, and amidst the many thousands of plants not one speck of mildew was visible; but the foliage was fresh, clean, and vigorous young shoots breaking up from the bottom thick and firm, with large clusters of buds—just such growth as one would expect to see in the south or west of England. Hundreds of Ericas and Cytisuses were growing outdoors just as well as in London. In other houses were thousands of Palms, and in one of the propagating houses were several thousand Hydrangea cuttings in a bed, and at the end of the house a number of fine young plants in 5-inch pots. Some were 9 inches high, with a stout stem, the joints about three-quarters of an inch apart, the leaves 9 inches from the stem to the tip and 5 inches across, with large buds close, hard, and green, like small Cauliflowers. I was told that when potting them the men employed an extra quantity of the manure now being made and advertised by the Company, which is also being used for all purposes, even for their Orchids. I

noticed a fine lot of plants of the Chimney Campanula. So few know how to do these well in the present day, yet here they were 8 and 10 feet high, with several stems, and white, blue, and lilac flowers. Solanums are largely grown, also Bouvardia Alfred Neuner, Tuberous Begonias, Fuchsias, Pelargoniums (Show and Regal), Zonals for winter blooming, Aralia Sieboldii, with other table and foliage plants.

I was especially pleased with the packing shed; it is, in fact, a conservatory with platform all round, with a place for everything, even to a pair of scales. In the workshop the steam engine was driving the saws and other machines, and men were busy making the frames the Company advertise so much, and I was told they have large orders in for glass houses. I also visited the new nursery, some fifteen acres, at Gateacre, about four miles distant. This land was only obtained eleven months since, but several houses have been erected, in which the plants are looking well. Most of the grounds are planted, and the walks were wide enough for a carriage drive. To describe in detail all I saw would be too wearisome, but from the above notes it will be seen that The Vineyard Nursery is a large one, and all gardeners who may visit Liverpool should not omit a call at Garston.—N. J. D.

THE MOUNTAIN ROSE.

UNDER this rather pretty yet very appropriate name of the old botanists, the attractive hardy shrub *Rhododendron hirsutum* is



Fig. 29.—*Rhododendron hirsutum*.

scarcely known now. It is a native of the Alps of Switzerland, and is found near the summits of lofty mountains. When densely covered with its rosy scarlet flowers it has a glowing effect. The popular name is thus very expressive, both as regards the habitat of the plant and its appearance when flowering in its mountain home.

For planting on large rockeries this *Rhododendron* is admirably adapted, its spreading yet compact habit rendering it very suitable for such sites; and even when not flowering its dense bright green

foliage imparts to the mounds an agreeable appearance, while when in flower dwarf bushes of several feet in diameter are very beautiful. It also grows well in beds and borders, and succeeds in soil in which Rhododendrons flourish. In some gardens this Rhododendron is plentiful, and, in good condition, never fails to contribute to their attractiveness during May and June; but in others it is not represented. It is a distinct and good old flowering shrub, and ought to be grown everywhere, being extremely hardy, and always admired when covered with its small bright flowers. It has been tried as a forcing plant for the conservatory, but does not appear to like a high artificial temperature.

The woodcut (fig. 29) is a reduced representation of a small spray, and well indicates the floriferous habit of the plant.

SHREWSBURY HORTICULTURAL SHOW.

AUGUST 16TH AND 17TH.

THE above Society is one of the most flourishing in the kingdom, and the finances have enabled the Committee to greatly improve the Quarry Grounds, in which the Exhibition is held. It is now a pleasant situation for a summer show, and the inhabitants of the town and neighbourhood indicate their appreciation by visiting the grounds in thousands. The days of the Exhibition are regarded as a general holiday, and the chief approaches are festooned and draped with flags and banners. The Show, like the grounds, has steadily improved each year, while the one opened on Wednesday was considerably the best yet seen at Shrewsbury. Three years ago it was mentioned that an improvement was necessary in placing on the prize cards; and this year the South Kensington system was adopted, and the whole was done without hurry or confusion. The plants were of superior quality in the open classes except the Tuberous Begonias and Achimenes, which were poor. The amateurs' classes showed a marked improvement in the quality of the exhibits, while the groups arranged for effect were very attractive. The fruit was good, except the Muscat Grapes, many of them being far from ripe but good in other respects. The cut flowers were superb, especially the Dahlias and Gladiolus. Vegetables were of satisfactory quality, and shown in large quantities.

Store and Greenhouse Flowering and Foliage Plants.—In the class for twenty plants, not less than ten in bloom, there were three entries. Mr. J. Cypher, Cheltenham, took the lead, followed closely by Mr. Tudgey, gardener to J. F. G. Williams, Esq., Henwick Grange, Worcester. Mr. J. F. Mould, Pewsey, Wilts, third with an uneven collection of much smaller size. The first-prize collection contained grand examples of *Ixora Pilgrimii*, *Allamanda nobilis*, *Lapageria rosea*, very good; *Clerodendron Balfourianum*, *Ixora Duffii*, a very fine plant with twenty large trusses, some more than 10 inches in diameter; *Ixora Williamsii* well bloomed, *Bougainvillea glabra*, *Erica æmula* and *E. Austiniana*, neat and in the best of health. The principal fine-foliage plants were *Croton Disraeli*, *C. majesticus*, *Thrinax elegans*, *Cycas revoluta*, *Latania borbonica*, *Dasyllirion acrotrichum*, *Gleichenia flabellata*, and *Cordyline indivisa*; while Mr. Tudgey staged good well-grown plants of *Croton Queen Victoria*, *C. Andreanus*, *C. Johannis*, *Dipladenia amabilis* well flowered, *Ixora amabilis*, *Anthurium Schertzerianum*, a large specimen and a very fine variety; *Gleichenia rupestris*, *Cycas circinalis* and *C. revoluta*, *Dipladenia hybrida*, *Erica Fairriana* and *E. ampullacea*. Mr. Mould's best plants were *Dracæna Goldiana*, *Statice profusa* and *S. Butcherii*. In the corresponding class for nine plants, not less than five in bloom, there were six entries. Mr. C. Roberts, gardener to E. Cliffe Glover, Esq., Highfield Hall, Staffordshire, took the lead with a good *Ixora Williamsii*, *Allamanda Hendersoni*, *Eucharis amazonica* 4 feet in diameter and remarkably well flowered, *Croton majesticus*, and *Clerodendron Balfourianum*. Mr. W. Pratt, gardener to Lord Hill, Hawkstone, Salop, followed closely, showing a good *Alocasia metallica* and *Nepenthes Hookerii*. Mr. Purser, gardener to J. Watson, Esq., was the other successful exhibitor, and staged a good *Vinca alba*. In the amateurs' class for six plants, not less than four in bloom, H. Owen, Esq., The Cedars, Shrewsbury, was first, having amongst others a good *Begonia metallica*. Mrs. Wace and L. Burd, Esq., were second and third respectively.

Ericas.—These were not shown in large numbers, as the schedule only provided one class, which brought out three competitors—Messrs. Cypher, Tudgey, and Mould. Those shown by the first-named exhibitor were neat, healthy, and profusely flowered plants. The varieties were *E. Marnockiana*, *E. McNabiana*, *E. Turnbullii*, *E. æmula*, *E. Austiniana*, and *E. Maidstoniensis*. Mr. Tudgey's were rather smaller but very fresh, *E. Lindleyana*, *E. insignis*, and *E. tricolor Wilsoni* being good; while Mr. Mould staged a grand *E. cerinthoides coronata*.

Palms.—There were three exhibitors in the class for six tall Palms, and the plants staged were large, well furnished, and in admirable condition. Mr. Cypher was first with *Pritchardia pacifica*, *Kentia Fosteriana*, good; *Thrinax elegans*, *Kentia australis*, and *Verschaffeltia splendida*. Mr. Tudgey second with rather smaller plants; *Geonoma gracilis* and *Thrinax elegans* were very fine. Mr. C. Roberts was third with much smaller plants.

Dracænas.—There were only three collections staged in the class for six plants, which were of good quality but not large, being dwarf and well coloured. Messrs. Pratt, Purser, and Roberts were the

prizetakers in the order named. The first-prize collection did not contain a faulty plant, the varieties being *Leopoldi*, *Reginæ*, good; *Mooreana*, very fine; *Baptistii*, *Berkeleyi*, and *Fraseri*. Mr. Purser staged grand plants of *splendens* and *hybrida*, while the third collection included good examples of *Willsii* and *Elizabethæ*.

Caladiums this year showed a marked improvement, and the first and second collections were very creditable. The prizetakers were Messrs. Pritchard & Sons, Shrewsbury; Mr. J. C. Slater, gardener to G. D. Lees, Esq.; and Mr. Farrant, gardener to Mrs. Juson.

Coleuses were well represented, and all of pyramidal shape, as stipulated in the schedule. In the class for six distinct varieties those shown by Mr. Purser were very neat. The plants were about 6 feet high and perfect in shape, while the bright colours of the foliage were all that could be desired. His plant of *Lady Burrell* had not a sportive leaf upon it, while Mrs. G. Simpson, Zanzibar, Ajax, Soliel, and Smart were very fine. Mr. J. Morris, gardener to Mrs. Shaker, and Mr. G. Pearson, gardener to Lord Berwick, were second and third with good plants, but not so neat as the first collection. Mrs. Wace, E. Burd, Esq., and H. Owen, Esq., were the successful exhibitors in the amateurs' class for three plants.

Fuchsias were also in better condition than last year; the plants were considerably larger and much more profusely flowered, although there is still room for improvement. For six plants, distinct varieties, Messrs. Pritchard & Sons were first with creditable plants well flowered, the best being *Blushing Bride*, *Charming*, and *Crimson Globe*. Messrs. R. J. Niven and A. Myers were second and third. The plants in the amateurs' class for three were even and better flowered than in the preceding class. Mr. H. Owen first with good examples of *Avalanche* and *Rose of Castile*, Mrs. Wace second with smaller but neat plants, while Mr. L. Burd was second with larger but poorly flowered examples.

Begonias, **Balsams**, **Achimenes**, and **Gloxinias** were of inferior quality, and need no further remark, except those in the amateurs' class, which were much the best flowered.

Table Plants.—These are always good at Shrewsbury, the plants generally being of small size, neat, and well-coloured. Messrs. Jones and Sons, Shrewsbury, took the lead with a grand lot, the most striking being *Croton interruptus aureus* and *C. majesticus*, *Dracæna gracilis*, *Pandanus Veitchii*, *Cocos Weddelliana*, *Aralia gracillima*, and *A. elegantissima*. Mr. Farrant was a good second, and staged a beautiful *Croton Johannis*, *Geonoma gracilis*, and *Yucca filamentosa variegata*. Mr. W. Pratt followed closely with neat and even plants. There were six competitors, all staging well.

Groups.—These occupied the left hand side of the large plant tent, and created considerable interest, as the competition was good and keen, seven or eight groups being staged. They were arranged for effect on a space not exceeding 100 square feet, and were on the whole more tastefully disposed than we have seen them at this Society's previous exhibitions. Mr. Pratt won chief honours with a light and effective group of choice plants. Most of the groups contained a number of flowering plants, but in Mr. Pratt's there was none. The principal objects of the group were *Crotons*, *Thomsonii* grandly coloured, *Disraeli*, *Johannis*, *Andreanus*, and *Evansianus*; *Aralias*, *Palms*, and *Dracænas* rising out of a groundwork of *Ferns*, small *Crotons*, *Coleuses*, *Caladiums*, and edged with *Panicum variegatum*, *Sonerilas*, and a number of well-berried *Nertera depressa*. Messrs. Pritchard & Sons, Frankwell Nurseries, were second with a rather heavier group, and Mr. J. W. Pritchard, 63, New Street, third. In the class for fifty miscellaneous plants grown in 5-inch pots, not less than thirty in bloom, there were four competitors; the exhibits were arranged on narrow stages, and added materially to the effect of the large tent. Messrs. Jones & Sons took the lead, having a number of *Odontoglossums*, *Dendrobiums*, and *Cattleyas*; several *Rhododendron Princess Royal* were also in flower. Messrs. Pritchard and Sons were second with a grand assortment of well-grown small plants, and would, but for the few *Orchids* in the first-prize collection, have had a higher position. Mr. H. Purser was awarded the remaining prize.

Zonal Pelargoniums.—These constituted an imposing feature in the large tent, the plants being of moderate size and fresh, with very large trusses of flowers. In the class for six doubles Messrs. Oldroyd and Co. were first with well-flowered examples of *Madame Thibaut*, *Prince Noir*, *Adelaide de Blanche*, *Wonderful*, and *Asa Grey*. Messrs. Pritchard & Sons were second, having a good *Sylvia* and *Victor Lemoine*. Mr. J. R. Jones third with larger but not such well-flowered plants. In the corresponding amateurs' class for three plants, Messrs. L. B. Burd and H. Owen were the prizetakers, both staging very neat plants. For six singles Messrs. Oldroyd & Co. were again first, showing *Hettie*, Mrs. Vickers, *Pirate*, *Lady Sheffield*, *Ellen*, and *Turner's Bride*, all good. Mr. J. R. Jones was second, having a good *John Gibbons* and *Arthur Rogers*, Messrs. Pritchard & Sons were third. There were four entries. For three plants H. H. Treasure, Esq., first with good plants not named; Mr. H. Owen second, having a grand plant of *White Vesuvius*; Mr. L. Burd followed, having a fresh well-flowered plant of *Henry Jacoby*.

Ferns.—Though not extensively shown the plants were large in the open classes and in excellent condition. For nine exotic *Ferns* Mr. Cypher staged large well-grown specimens of *Woodwardia radicans cristata*, *Gleichenia flabellata*, 6 feet through; *Dicksonia antarctica*, *Microlepia hirta cristata*, very fine; *Gleichenia Speluncæ*, *Cibotium princeps*, *Davallia Mooreana*, and a grand *Adiantum trapeziforme*. Mr.

Tudgey was the only other exhibitor, and was placed second, having large well-grown plants of *Adiantum cuneatum*, *A. decursum*, and *Hymenophyllum demissum*. For six plants Mr. Farrant took the lead with *Adiantum pedatum*, *A. formosum*, *A. venustum*, and *Davallia Mooreana*, all good. Mr. W. Pratt was second with a large *Adiantum gracillimum* and *Asplenium bulbiferum*; and Mrs. R. S. Burton was third. In the amateurs' class for four plants there were seven entries, the prizetakers being Messrs. H. Owen, R. Cooper, and H. H. Treasure; for hardy Ferns Messrs. Pritchard & Sons, Harrison, and J. R. Jones in the order as named, staging very creditable specimens.

CUT FLOWERS.—The competition was keen in the various classes devoted to these. Roses were not shown in large numbers, but the blooms were of first-rate quality. In the class for twenty-four single trusses Messrs. Perkins & Sons, Coventry, were awarded the premier position, having good blooms of *Marie Baumann*, *Beauty of Waltham*, *Belle Lyonnaise*, *Madame Marie Verdier*, *Henry Eaton*, *Mdlle. Annie Wood*, and *Dupuy-Jamain*. Messrs. James Dickson & Sons, Newton Nurseries, Chester, were closely second with fine flowers of *Mdlle. Marie Rady*, *Mrs. Jowitt*, *Duchess of Bedford*, *Louis Van Houtte*, and *Lord Beaconsfield*. Mr. F. Perkins, Leamington, obtained the remaining prize with much smaller blooms. Messrs. C. M. Campbell, G. Townsend, and E. W. Pritchard were the principal prizetakers in the smaller Rose classes.

Dahlias were of fine quality, the blooms being of large size, fresh, and good colour. For thirty-six distinct blooms there were only two exhibitors, Mr. Shaw being easily first. His most striking blooms were *John Bennett*, *Rev. J. M. B. Camm*, *Burgundy*, *Egyptian Prince*, *Mr. Bunn*, *Henry Bond*, *Duke of Connaught*, *Peacock*, *Prince Bismarck*, *J. C. Quennell*, *General Roberts*, *John McPherson*, *John Wyatt*, *John Greenaway*, *Pioneer* (fine dark flower), *Woman in White*, and *Countess of Pembroke*, no prize being awarded the other collection. In the class for twenty-four blooms the same exhibitor was again first with even and finer blooms than his thirty-six. For nine blooms Messrs. R. J. Niven, Campbell, and Rev. J. H. Charter were the successful exhibitors.

For thirty-six single *Gladiolus* spikes Messrs. Kelway & Sons took the lead with splendidly arranged examples, even finer than generally seen from that firm. Mr. Shaw was second with a very creditable collection, but far behind those to which the first prize was awarded. A few of Messrs. Kelway & Sons' best were *Agrius*, salmon pink; *Beauty of England*, *Astræa*, *Bethcar*, *Cassino*, *Lady Bridport*, *Marcianus*, *Mrs. J. Eyton*, *Mrs. Laxton*, *Mrs. Reynolds Hole*, *Parsonii*, *Plautus*, *Ptolemy*, *Queen Mary*, and *Rhamnes*. Mr. Lambert, gardener to Col. Wingfield, took the lead in the class for eighteen spikes, followed by Messrs. Pritchard & Sons and Mr. J. W. Pritchard.

Asters were numerous, but not up to the usual standard. In the class for twenty-four, not less than twelve varieties, Messrs. A. Myers, W. Shaw, and J. Bowen Jones were the successful competitors. In the amateurs' class for the same number, but not less than six varieties, Messrs. J. B. Jones, Harrison, and Shuker took the lead in the order as named.

Mr. Pratt was successful in the class for twelve trusses of stove and greenhouse cut flowers; second Messrs. Pritchard & Sons; and third Mr. J. C. Salter, gardener to G. D. Lees, Esq. There were five entries. Mr. Pratt's best bunches were *Lapageria rosea* and *alba*, *Ixora coccinea*, *Allamanda Wardleyana*, *Dendrobium chrysanthum*, and *Stephanotis floribunda*. For twelve trusses of herbaceous cut flowers Mr. G. Townsend, Uffington, was first with a neat collection of fair-sized bunches; Mr. J. B. Jones second; and Mr. R. W. O. Withers third, the last-named collection being very uneven. In the class for twelve spikes of herbaceous *Phloxes* there were thirteen competitors. Messrs. Pritchard & Sons and A. Myers were the fortunate exhibitors. For six Messrs. Harrison, Campbell, and Crump. The principal prizetakers for Ten-week Stocks were Messrs. Townsend, Cooper, E. W. Pritchard, Jones & Sons, and Shuker. Miss Brooks took the lead for twelve French *Marigolds*; and Mr. J. Mitchell for the same number of African *Marigolds*, with splendidly shaped flowers.

Mr. Rudge, gardener to T. S. Eyton, Esq., was first for twelve trusses of Zonal *Pelargoniums*, the collection being even and neat. Messrs. Pritchard & Sons, and Oldroyd & Co. second and third. For twelve bunches of Show or Fancy *Pelargoniums* Mr. F. Perkins, Leamington, was well first with large trusses of *Captain Raikes*, *Madame Thibaut*, *Illuminator*, *Royalty*, *Beauty of Oxtou*, *Emperor of Russia*, *Ed. Perkins*, *Delves Broughton*, *Dr. Masters*, and *Volonté Nationale*; Messrs. Pritchard & Sons second with grand *Dr. Andry*, *Prince of Wales*, and *Lucy Lemoine*. Messrs. Jones & Sons were awarded the remaining prize. Trusses of *Verbenas* were good, and Messrs. Pritchard & Sons, J. W. Pritchard, and W. Shaw were successful exhibitors.

Bouquets were not numerous, but good. Mr. Cypher was first for one ball or hand bouquet, which was neat, and composed of *Eucharis*, *Cattleyas*, *Lapageria alba*, and a few flowers of *Ixora* and *Rhododendron Princess Royal*. Mr. F. Perkins was second, his being composed of Hybrid *Perpetual* and *Tea Rose* buds. Messrs. Jones & Sons were third. For one bridal bouquet Mr. F. Perkins was first, followed by Mr. Cypher and Mr. Herbert Jones, all being remarkably good. Mr. Cypher was first for button-hole bouquets, and Mr. Tudgey for a stand of cut flowers for table decoration, the arrangement being very light and effective. Mr. Cypher was second, and Messrs. Jones and Sons third.

FRUIT.—In the open class for twelve dishes Mr. Pratt was well first with good Black *Hamburgh* and *Muscat of Alexandria* Grapes, *Queen Pine*, *Conqueror of Europe* Melon, *Brown Turkey Figs*, *Moorpark Apricots*, *Irish Peach Apples*, *Pine Apple Nectarine*, *Bellegarde Peaches*, and a good dish of *Cherries* and *Plums*. Mr. R. Milner, gardener to J. D. Corbett, Esq., was second, having fine *Muscat of Alexandria* Grapes, *Peaches*, and a good *Pine*. Mr. Hannagan, the remaining exhibitor, was thrown out for having two dishes of *Apples*. The schedule merely specifies "distinct," and can be read "for distinct kinds or varieties." In the corresponding class for nine dishes, *Pine* excluded, open to the counties of *Montgomery* and *Shropshire*, Mr. Purser was the successful exhibitor, and staged fair Grapes but rather small, good *Prince of Wales* Nectarines, *Grosse Mignonne* Peaches, and a good Melon. Mr. Lambert was a close second with fine Grapes but scarcely ripe, and good dishes of *Grosse Mignonne* Peaches and *Early Orange Apricots*. Mr. G. Pearson obtained the other prize. For six bunches of Black Grapes, three varieties, Mr. W. Pratt was successful with neat well-finished bunches of *Madresfield Court*, good in berry and colour; *Black Hamburgh*, fine in every respect except that the berries were rather undersized; and well-finished *Lady Downe's*. Mr. R. Milner was second with larger but looser bunches of the same kinds, except *Alicante* in the place of *Madresfield Court*. Mr. Goodhill, gardener to E. T. W. Wood, Esq., was third with good bunches but rather defective in colour. There were five entries. For three bunches of black Grapes, open to the two counties above referred to, Mr. J. Lambert took the lead with *Black Hamburgh*, good in berry and colour, although the bunches were not large; Mr. Purser second; and Mr. C. Davies, gardener to F. S. B. Sladen, Esq., third with very fair Grapes cut from Vines over seventy years of age. Mr. R. Milner was first for four bunches of white Grapes with good *Buckland Sweetwater* and *Muscat of Alexandria* Grapes, the latter scarcely finished; Mr. W. Pratt second with *Trebbiano* and rather small *Muscats*; and Mr. Purser third. The remaining two Grape classes were devoted to amateurs. Mr. Lea, *Whitchurch*, took the lead with well-finished *Black Hamburghs*, the berries being rather small. Messrs. Watson, Lea, and Charter were first and second for two bunches of white Grapes.

Messrs. Bain, gardener to R. Broughton, Esq.; Hannagan; and J. Edwards, gardener to Sir F. Smythe, were the prizetakers for *Peaches*. For a dish of *Nectarines* Mr. C. Dawes was first with *Elruge*; Mr. J. Bain second with *Pitmaston Orange*. For *Apricots* Mr. Dawes took the lead; and Mr. S. Jones, gardener to W. Hazeldine, Esq., for *Plums*. Mr. Farrant was first for a green-flesh Melon with *Eastnor Castle*; Mr. Owen second. Mr. Shutte first for a scarlet-flesh with *Hero of Bath*; Mr. Farrant second with *Read's Hybrid Scarlet Flesh*; and Mr. Lambert third. Mr. Hawkesford, gardener to Sir V. R. Corbett, for *Cherries*, which were very fine.

VEGETABLES.—These were very numerous and of fine quality. The competition was close, there being from seven to fifteen exhibitors in each of the fourteen classes devoted to vegetables. Mr. R. Milner took the lead for the collection of twelve dishes, followed by Mr. Purser and Mr. Pratt. The first collection contained first-rate examples of *Webb's Crimson Beet*, *Reading Onions*, *Canadian Wonder Beans*, *Autumn Giant Cauliflowers*, *Reading Russet Potatoes*, *Telegraph Peas*, *Manchester Red Celery* very fine, *Intermediate Carrots*, and a dish of good *Leeks*. Messrs. A. Myers, R. Milner, and H. Purser were the prizetakers for six distinct dishes of *Potatoes*. The tubers, with the exception of one or two collections, were clean, even, and of suitable size. Mr. Myers staged *Beauty of Hebron*, *Schoolmaster*, *Rector of Woodstock*, and *Vicar of Laleham*. In the class for three dishes Mr. R. Milner was first, staging grand examples of *International Kidney* and *Reading Russet*; Mr. Purser had fine tubers of *Webb's Surprise*, Mr. C. Dawes took the remaining prize. Mr. Hannagan, *Hooton Hall*, took the lead for *Tomatoes* with large shapely fruits of *Stamfordian*, followed by Mr. Myers and Mr. G. Goodhill. For one dish of *Peas* Mr. Laurence, gardener to H. M. Heywood, Esq., first with *Stratagem*, Mr. Hawksford second with *Telephone*, and Mr. J. Bain third. Messrs. W. Dow, Lambert, and Pearson were the prize-takers for spring *Onions*, which were remarkably fine; while Messrs. Myers, Pearson, and Hannagan were successful for autumn *Onions*, which were of considerable size. *Cauliflowers* were rather coarse, those shown by Mr. Lambert excepted. *Cucumbers* were all that could be desired, and the same exhibitor was again first, Mr. H. Purser second, and Mr. W. Rudge third. *Celery* was good considering the earliness of the season, and the prizes were won by Messrs. R. Milner, H. Purser, and Rev. A. W. Brooke. Mr. Pratt was first for French Beans with *Canadian Wonder*, Mr. Hannagan second with *Palc Dun*, and Mr. Lambert third. *Parsnips* were clean and straight, and the same applies to the *Carrots*, Mr. Dawes taking the lead for the former, and Mr. Dow, gardener to J. Phillips, Esq., for the latter. Mr. Purser took the lead for *Turnips*, which were superb.

Miscellaneous Exhibits.—Messrs. Oldroyd & Co. exhibited a group of choice *Conifers*, which were arranged near the main entrance to the grounds, also a number of well-flowered single Zonal *Pelargoniums*. Messrs. J. Dickson & Sons, Newton Nurseries, Chester, had small *Fig trees* in 6-inch pots fruiting freely, and a choice collection of stove foliage plants, principally of a decorative size. Messrs. Perkins & Sons, Coventry, several boxes of *Roses*, which contained many very good blooms. Mr. F. Perkins, Leamington, had a similar collection. Messrs. Kelway & Sons, Langport, showed single *Pyrethrum*s and *Gladioli*, which were very much admired. Messrs. F. and A. Dickson & Sons, The Upton Nurseries, Chester, contributed largely

to the Exhibition with a varied collection of stove, greenhouse plants, herbaceous plants, and small choice Conifers, all neatly and tastefully arranged, also Vines in pots and Figs; the latter were very fine from eyes this season, and now in 8-inch pots, carrying from twenty to thirty fruits. Messrs. Jones & Sons also exhibited Conifers and plants.

Cottagers' Exhibits.—The schedule provides some thirty-nine classes for these exhibitors—viz., twenty-one for vegetables, seven for fruits, and eleven for plants and cut flowers. The prizes offered were well contested, and the exhibits filled a large tent nearly 150 feet long and proportionately wide, with a stage down the centre and on each side. The vegetable exhibits were especially noteworthy, Potatoes, Beans, Peas, Onions, Carrots, Parsnips, Celery, and others being remarkably fine. The whole of the Turnips and Cauliflowers were

too large, and in consequence coarse. The managers of other large provincial societies will do well to follow the worthy example set them by the Committee of the Shrewsbury Society, and make liberal provision in their schedules for these classes of exhibitors, which are worthy of encouragement.

SILKWORMS AND SILKWORM REARING.—14.

(Continued from page 123.)

MORE valuable in regard to its silk, and apparently easier to rear than the *Attacus Cecropia* already mentioned, is another species also of North American parentage, *A. (or Telea) Polyphemus* (fig. 30), though I confess I see no good reason why it should



Fig. 30.—MOTH AND CATERPILLAR OF *ATTACUS POLYPHEMUS*

be named after the one-eyed giant of mythologic lore. Indeed, so highly is this estimated by several of those naturalists who have made a special study of the silk-spinners, that although there are half-a-dozen or more belonging to this tribe of moths which have been reared in the hope of turning their silk to useful account, *Polyphemus* has begun to receive the title of *the American Silkworm*. The cocoon of the species resembles that of the common silkworm, that of *Yama Mai*, and others allied to it, in being closed at both ends. In shape this is oval and compact, the fibre of the silk, which is nearly white, being very strong and glossy.

To Mr. L. Trouvelot, of Boston, U.S.A., belongs the credit, so we are informed, of suggesting that *A. Polyphemus* might be "tamed" and utilised, at the time when people were inquiring into the merits or demerits of American silkworms. Previous to 1860 scarcely a specimen of this worm had been reared in captivity, and its habits were unknown. This gentleman at once resolved to take up the matter practically, and prove, if he could, the theory he had put forth. "At first," he writes, "the undertaking seemed very simple, but who will ever know the difficulties, the hardships, and discouragements which I encountered?" The insect not being abundant, there was an unavoidable delay, owing

to the death of some of the earlier caterpillars bred and the long searches requisite to produce more. In spite of care bestowed it was not until 1865 that a really satisfactory result was attained, and Mr. Trouvelot had that season nearly 500,000 of the worms distributed over a patch of woodland five acres in extent, the bushes upon which they fed being enclosed with nets. I believe it was about three years after that date when British specimens of this silkworm were first obtained.

Both in Britain and in America the insect is single-brooded in the ordinary way, but should the cocoons be kept at too high a temperature soon after they have been spun, the moths they contain will sometimes emerge towards the end of autumn. If eggs are obtained from these they are likely, under the circumstances, to turn out unproductive. The proper season for the moths to appear is the months of June and July, when each female deposits about three hundred eggs, which hatch in twelve or fourteen days after. Selecting from a number of trees upon the leaves of which the worms have been reared, it may be noted that *A. Polyphemus* has grown well when supplied with Birch, Beech, Chestnut, Elm, Hazel, Maple, Oak, and Willow. In this, as in some other species, there is the curious circumstance that the young silkworm makes

the commencing meal off its egg-shell. There are four changes of skin, these changes or moults usually occurring at the same hour of the day, with an interval of ten or twelve days between them. Each time, as Mr. Trouvelot has observed, the silkworm spins a little pad upon a leaf to keep its position firm during the operation. He also noticed that after a moult each worm examined the body carefully, feeling especially at the openings of the spiracles or breathing tubes, evidently to remove any fragments of the old skin that might chance to be left. After the last moult the growth is more rapid, the whole life of the silkworm varying from two months to ten weeks; it is thus longer in attaining maturity than are some of the silkworms. When adult the caterpillar of *A. Polyphemus*, as may be seen in the figure, is a striking object, the delicate green ground colour being studded over with pink spines. In addition to these it has about fifty metallic spots; most of these are silvery, but eight of them situated on the front segments are of a golden hue.

The silk of the cocoon of *A. Polyphemus* is so tightly compacted and gummed together, that the perfect insect requires the aid of a solvent in order to effect its extrication. This is discharged upon the fibres by the moth some hours before it begins its struggle to make an opening, and this task is then facilitated by the acid which the fluid contains. From this fact it follows that if the cocoons are to be utilised for their silk, the chrysalids or pupæ enclosed must be previously killed, as is the practice with the Mulberry species. Nor could the thread be unwound continuously unless moistened by plunging the cocoon in water of a suitable warmth. Some of the breeders of the species in this country have found a difficulty in obtaining eggs, but practice will probably show us how this can be better managed. In the autumn of 1878 Mons. Wailly, having to leave his home, placed upon some small trees in his garden at Clapham—Hazel, Birch, and Willow—several caterpillars of *A. Polyphemus*. Upon his return he was gratified to discover that they had spun cocoons, so proving that the insect might be reared in our climate without protection, at least after a certain period of growth has passed.

Attacus Luna is another species that has been imported from America. The moth is of unusual beauty, named by some fanciful naturalist after the "queen of night." It is not unworthy of the honour, for the wings, which are adorned with long tails resembling those which bedeck our swallow-tail butterfly and others of the Papilio tribe, are of a green tint very pleasing to the eyes. Crossing them are also stripes of purple grey, and upon each of the fore wings spots resembling the lunar crescent, while the hind wings have their corresponding spots, which are rather eye-like. In Britain the caterpillars of this species, which hatch during July or August, feed well upon Walnut, Hazel, or Oak. From experiments at Clapham M. Wailly inclines to think that if let alone they would live in the open air, but his specimens placed at liberty were found out and devoured by sparrows when they became large, so failed to reach maturity. A small colony of these silkworms was reared upon Walnut leaves by Mr. Grapes in about eight weeks, the cocoons being placed in small hollows formed by drawing some leaves of the food plant together. Through their successive changes of skin they are of the same green or greenish white as when first hatched. Upon the skin are numerous irregular points and warts of red or crimson. The cocoon is long and also broad. The value of its silk remains yet to be ascertained.

Apparently more difficult to rear is the even more gorgeous and nearly allied insect, a native of India, *A. silene*, which exceeds in size its American relation. The food of the English-bred specimens has hitherto been Walnut, Willow, and Cherry, but it has succeeded better in France and Germany than on English soil as yet. This is one of the races of silkworms from which by suitable management more than one brood may be obtained in the course of a year. Cocoons obtained from Asia have yielded moths between March and August; these are similar to the cocoons of *A. Luna*, in being open, not compact. At the Westminster Aquarium those interested in silkworms may see sample cocoons of *Attacus Aurota*, only recently brought to us from French Guiana. The worms are reported to grow with great rapidity. Its general aspect has led to its being called the South American Atlas.—J. R. S. C.

ROYAL HORTICULTURAL SOCIETY.

AUGUST 22ND.

NEITHER plants nor fruits were largely shown at Kensington on Tuesday last, the two chief collections being the handsome single Dahlias from Tottenham and the Balsams from Dulwich.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. Messrs. T. Rivers & Son, Sawbridgeworth, exhibited a collection of seedling

Nectarines, which were considered of deficient flavour and tasted of the packing material—some rough moss. Some handsome samples of Beurré de l'Assomption Pears were shown, but to specimens of Clapp's Favourite Pear similar remarks apply to those characterising the Peaches above. Messrs. J. Cheal & Sons, Crawley, sent several Melons, one Crawley Paragon of very good flavour, similar to Turner's Scarlet Gem; it is a very neat scarlet-fleshed Melon of moderate size. Shepherd's Model and Excelsior were considered worthless. Mr. C. Fidler, 104, Friar Street, Reading, sent a seedling Potato named Fidler's No. 1, which is now being grown at Chiswick, and will there come before the Committee. Mr. A. Faulkner, Inkpen, Hungerford, sent a dish of fruits of a seedling Raspberry, considered of inferior size and flavour to others in cultivation. Mr. W. Divers, The Gardens, Wierton Hall, Maidstone, had a collection of fruits, including a seedling Peach, which was not considered worthy of special notice. Mr. J. Moore, gardener to J. Haig, Esq., Bray Court, Maidenhead, sent fruits of a seedling Tomato, for which a cultural commendation was awarded, the Committee considering it a fine strain of Excelsior.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. A medal was awarded to Mr. T. S. Ware, Tottenham, for a very extensive collection of single Dahlias, comprising over three hundred blooms, and representing a great number of beautiful varieties. Some of the most distinct were the following:—Rob Roy, rich scarlet; White Queen, Mauve Queen, Ascalon, crimson shaded; Beauty, Yellow Queen, Francis Fell, crimson; Maroon, small, but rich colour; Zimapani, very deep maroon, nearly black; Merckii, small white, like Glabrata; Stars and Stripes, mauve, streaked with crimson; Pantaloon, small, but neat, florets rose in the centre, tipped with white and margined with maroon. Many other beautiful forms were also shown in this collection, and a great improvement was notable in the breadth of the florets, the general outline, the substance, and the purity or richness of the colours. Mr. T. S. Ware also sent a basket of the variegated Grass *Eulalia japonica zebrina*, the transverse bars of white being distinctly marked on a bright green base.

Votes of thanks were accorded to all the following exhibitors:—Mr. H. Eckford, gardener to Dr. Sankey, Boreatton Park, Shrewsbury, for a collection of Carnation and Sweet Pea blooms. The latter included samples of Blue King, Duchess of Albany, Lettie Eckford, and Grandeur, all very good varieties. Mr. Francis Smith, sen., Park Road, West Dulwich, exhibited a collection of double-flowered Balsams, mostly bearing large, full, and well-formed blooms, purple, crimson, scarlet, rose, salmon, and white, the last-named being particularly good; some of the flowers were diversely streaked or spotted. Mr. G. Young, gardener to Capt. Patton, Alpha House, Regent's Park, had a plant of *Lisianthus Russellianus*, bearing half a dozen of its large bright purple flowers. Some dwarf Cockscombs and Adiantums were also shown from the same garden. Mr. Woodbridge, The Gardens, Syon House, Brentford, had a plant of *Celosia compacta* Crimson Superb, an excellent form of close pyramidal habit, 2 feet high and flowering well from the base, the flowers being of an extremely rich crimson colour.

Messrs. W. & J. Brown, Stamford, sent a white Lobelia named White Emperor William, the flowers large and pure white; and Mr. J. S. Grimshaw, Leigham Cottage, Balham, also had a plant of Lobelia purpurea with brightly coloured flowers. Mr. G. F. Wilson, Weybridge, showed a cut stem of *Lilium speciosum album* bearing four expanded pure white flowers, and four or five buds. Messrs. H. Cannell & Son, Swanley, sent some large and handsome yellow and orange Marigolds. Messrs. Paul & Son, Cheshunt, exhibited a box of White Baroness Rose blooms, mostly of good form, white tinged with rose at the margins of the petals. A large group of Tydæas and other Gesneraceous plants were shown from the Society's garden at Chiswick, including most of the forms described on another page.

First-class certificates were awarded to the following plants:—

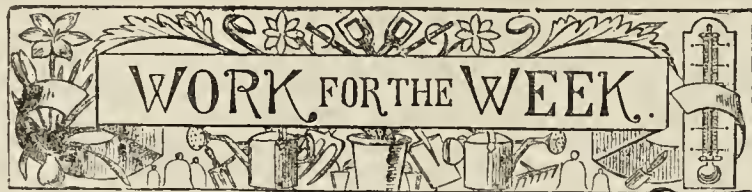
Carnation Mary Morris.—A first-class certificate was awarded for this as a decorative variety to Mr. H. G. Smyth, 17A, Coal Yard, Drury Lane. It is a very floriferous variety, with large, full, even, blooms of a clear bright rose-pink hue.

Lilium speciosum var. *Melpomene* (Hovey).—This was shown by G. F. Wilson, Esq., Weybridge, who stated it was a seedling raised some time ago by Mr. C. M. Hovey of Boston, Mass., U.S. It has large flowers deeply coloured with rich rosy crimson, the edges of the petals being lighter or quite white.

Three exhibitors appeared in competition for the prizes offered by Mr. J. E. Ewing, Eaton, Norwich, for a collection of cut sprays of ornamental shrubs or trees, Mr. A. Harding, The Gardens, Orton Hall, Peterborough, securing the chief prize with a collection of fine specimens, chiefly of Conifers, including the following:—*P. Nordmanniana*, with nine large cones; *Torreya myristica*, with several of its peculiar globular fruits; *P. nobilis*, with three handsome cones; *P. lasiocarpa*, *P. amabilis*, *P. bracteata*, *P. grandis*, *Pinus Montezumæ*, *P. excelsa*, *Abies Morinda*, *Thuja dolabrata*, and several *Thuias*.

Mr. J. W. Moorman, gardener to Miss Christy, Combe Bank, Kingston-on-Thames, was a close second with a diversified and creditable collection, which in the opinion of several visitors deserved a higher position. The sprays were placed in bottles, and appeared to much better advantage than the others which were simply laid upon the table. Some of the most noteworthy specimens were *Comptonia asplenifolia*, *Berberis mucronata*, *Quercus palustris*, *Larix Kämpferi*, *Azara microphylla*, *Garrya elliptica*, *Prunopitys elegans*, *Retinospora*

flicoides, and *Berberis japonica*. Mr. Hardie, Mayfield, Falkirk, was awarded a vote of thanks for a large collection of Conifers and miscellaneous shrubs and trees.



HARDY FRUIT GARDEN.

THE ground for fresh plantations of Strawberries should be prepared at once if not already done. Select ground in an open situation, manuring heavily and trenching as deeply as the soil will admit, for although the roots penetrate to a great depth under favourable conditions—a tendency that ought to be encouraged, as it enables the plants to better withstand the effects of dry hot weather, which so frequently proves injurious—yet to bring up much of the bad soil is not to increase its fertility, as until it becomes ameliorated by exposure and enriched by manuring it is positively injurious. The best plan to adopt when the good soil is shallow is to loosen the poor soil at the bottom of the trenches with a pick, and give a dressing of manure. The plants should be established in small pots or be carefully lifted from the ground, the soil well firmed about them, and a good watering be given, and repeated as necessary if the weather prove dry. Runners and weeds should be removed as they appear.

The Raspberry season being quite over the old bearing wood should be cut out, and the young canes thinned to four or six of the strongest and best placed, and to secure them against injury from wind in exposed situations they should be loosely tied to the stakes or trellises until they have completed their growth and well ripened the wood.

Some bushes of the Red Warrington Gooseberry or other late variety should be netted, and if there be bushes against a north wall the fruits will retain their flavour better than those in the open. Red and White Currants retain their flavour much longer, and Morello Cherries will keep good until October. They must, however, be netted to exclude birds, and if wasps and bluebottle flies are troublesome they must be excluded by hexagon netting.

Early Apples should be gathered before they become too ripe, or they will be mealy. The crop of these is unusually light, but we have on pyramids fair crops of Joanneting (white), Irish Peach, Devonshire Quarrenden, Worcester Pearmain, and Kerry Pippin; and of kitchen varieties Stirling Castle, Carlisle Codlin, Lord Suffield, and Ecklinville Seedling. Birds are often destructive to the softer-fleshed varieties, even before the fruit is nearly ripe, the only remedy being their exclusion by nets.

Apricots should have the protection of hexagon netting to exclude wasps and flies. The crop though light is of excellent quality. When the crop is all gathered examine the trees for any bare and attenuated spurs as well as long bare shoots, cutting them back to growth nearer the base or remove them altogether. Any dead or weak growth where crowded can be cut out, so as to give those remaining the full benefit of light and air to accelerate the ripening of the wood. Peaches and Nectarines will require looking over frequently for the regulation of the shoots, which are now growing rapidly, tying or nailing in the extensions; but the other shoots, those for next year's bearing, should as far as practicable be secured by twigs placed across the branches or wires, or be otherwise kept close to the wall to prevent damage from wind, and to give them the benefit of the warmth afforded by the wall. To effect this the growths must not be allowed to become too crowded, and any foliage overhanging the fruit must be turned aside or be shortened. Trees with fruit swelling should be assisted with copious supplies of water in dry weather. Peaches and Nectarines, Figs, Plums, and Pears ripening on walls will need daily attention, such fruits not being allowed to fall from the trees, as the experienced eye will experience little difficulty in detecting the indications of maturity, and by gently raising or moving such fruit it will separate from the tree without difficulty. All ripe fruit should be handled with the greatest care, as the

slightest undue pressure or rough handling will inflict injury resulting in deterioration of quality and appearance, also speedy decay.

All wall trees must be examined frequently for the securing in position extensions, and checking the growth of laterals by stopping and removing superfluous growths. Morellos should have the shoots laid in similar to Peach trees. Espalier, pyramid, and bush trees will need timely attention in removing or stopping lateral and superfluous growths, which allowed to form unchecked at this season will accelerate root-growth and induce late growth unfavourable to the ripening of the wood and the plumping of the fruit buds.

FRUIT HOUSES.

Vines.—Late Vines started in March and assisted with fire heat in spring and summer in cold dull weather have the Grapes well advanced, and instead of having to keep the Vines excited by sharp firing, as is the case with those started late in the spring, atmospheric moisture may be gradually reduced, and well-ripened wood with highly finished Grapes will be secured with just sufficient artificial heat to keep up a circulation of dry warm air. Where, however, late Vines were not started until April the Grapes will only be commencing colouring, and will need artificial heat to maintain a minimum temperature of 70°, and 80° to 85° in the daytime, with an advance of 5° to 10° on bright days. A little air should be admitted constantly, and moisture kept from condensing on the berries by increasing the ventilation early in the day. To assist the swelling of the Grapes a good soaking of tepid liquid manure must be given the inside borders, and moderate air moisture be continued some time longer. Late Hamburgs will colour and ripen perfectly even if they do not begin to colour before the middle of September, but they will need a night temperature of 65°, and 75° by day artificially, with an advance from sun heat to 85° or 90°. In their case there must not be any lack of moisture in the inside borders, but the watering and damping should be done early, so as to allow of any superfluity passing off before night. Vines from which the Grapes have been cut should not be neglected, but have all laterals closely stopped and a dry warm atmosphere to insure the perfect ripening of the wood. Preserve the old foliage as long as possible, freeing it of any red spider or dust by an occasional syringing on fine evenings.

Figs.—The second crop on early forced trees will now or soon be all gathered, when attention must be directed to the maturation of the growths. Water must only be given to prevent the borders becoming dry, and syringing may be discontinued except for the purpose of keeping the trees free from insects. A free circulation of warm dry air should be maintained in the house until the foliage indicates signs of ripening and dies naturally. Trees that are crowded with wood should at once be well thinned, so as to admit the free action of sun, light, and air to perfect the growths retained.

Trees that afforded a crop of ripe Figs in June will now be furnishing another crop of ripe fruit, and should be encouraged by liberal supplies of tepid liquid manure, or, if the trees are too vigorous, clear water only should be given. The ripening of this crop will extend over a considerable time, during which a constant circulation of dry warm air should be secured.

Melons.—Accelerate the growth of young plants by closing early with plenty of sun heat, syringing at the same time. Shading in the case of healthy and robust plants may now be nearly, if not quite, dispensed with, and less atmospheric moisture will henceforth be needed. If the last batch of plants are weakly assist with weak liquid manure about twice a week; however, do not apply much stimulant until after the fruits are set, when earth up with a good compost. Continue to fertilise the female blossoms every day, maintaining a dry condition of the atmosphere and soil. Fruit ripening should have a warm dry atmosphere and but little water at the roots of the plants, but enough to keep the foliage from flagging. Secure a good sun heat in pits and frames by closing early, damping the foliage at the same time, and raise the fruit to the glass.

Cucumbers.—Plenty of moisture and liberal feeding, and close attention in stopping, thinning, and regulating the growths, are essential to success. A little fire heat should be turned on on cold nights, not allowing the temperature to fall below 65°, and maintain it at 70° to 75° in the day artificially, and 80° to 90° from sun heat.

Shade only to prevent flagging. Liberal attention must be given the autumn-fruiting plants just placed out, adding a little fresh soil as the roots advance, maintaining a firm condition of the bed. In pits and frames be careful not to overcrowd the foliage, removing all spotted and bad leaves.

PLANT HOUSES.

Orchids.—The weather becoming cooler and the sun less powerful the East India house must be kept moderately close. In dull weather less moisture will be needed, and recourse must be had to fire heat to maintain a temperature of 75° by day and 65° at night. The house should be damped and blocks, &c., syringed by three o'clock, withdrawing the shading as soon as all danger of the sun scorching the foliage is past. *Aerides*, *Phalænopsis*, *Saccolabiums*, and *Vandas* should receive every encouragement to growth, as any check will cause short leaf-growth and spoil the appearance of the plants. *Phalænopsis* grown in pots or baskets must not have the sphagnum made sodden, or the roots will perish and the leaves become diseased. Dispense with shading on the *Cattleya* house altogether, light being of the greatest importance for the proper ripening of all pseudo-bulbs. *Barkerias*, *Cattleyas*, *Dendrobiums*, *Epidendrums*, *Oncidiums*, and many others if not properly ripened will produce weak flowers, followed by a weakly growth. Vigorous *Cattleyas* frequently start a second growth before the first is completed, in which case the plant should be encouraged to complete its growth as soon as possible. As flowers are now becoming scarce, it is necessary to keep them free from damp so as to preserve them as long as possible, they being most affected when suspended too close to the glass. *Cattleya crispa*, *C. Harrisoni*, *C. labiata*, *C. maxima*, and the *guttata* type will flower from now up to October. *Calanthe Masuca* and *C. veratrifolia* may be repotted. If the soil has become sour they should be carefully shaken out, washing the roots in tepid water, and repot in a compost of equal parts of turfy loam and peat, adding a little decayed manure and pieces of charcoal about the size of nuts, all well mixed, giving about 2 inches of drainage, and the plants kept about an inch below the top of the pot.

THE BEE-KEEPER.

EFFECTS OF COLD AND THE CONSUMPTION OF FOOD.

How it comes that doctors differ in their opinion on points easily settled is a question rather difficult to answer. A few weeks ago I gave reasons, sound and substantial in my opinion, for differing from the views of Dr. Dzierzon on questions touching the power of the bee-keeper in prolonging the lives of queen bees, the power of queens over their own fertility, and what caused the loss of so many bees during the working season. On page 137 we have, through the kindness of Mr. Alfred Neighbour, the opinions of Dr. Dzierzon on other questions of importance. He says, "The milder the winter the more complete will be the repose of the bees, and the lower will they be able to allow the temperature to become even when they have their winter quarters, whilst increasing cold stimulates them to breathe more frequently and to consume more food; in other words, it stimulates their vital powers to greater activity in order to be able to offer the necessary resistance to cold in winter."

Theory and experience, as well as the last mild winter, demonstrate to me practically the fallacy of this opinion. Exposure of the bees to extreme cold certainly causes them to crowd together into as thick a cluster as possible, but it does not send them into a sleep-like state of repose; on the contrary, it startles them out of their rest, compelling them to hum more loudly, while previously they were in perfectly silent repose. Nor does severe cold prevent premature breeding. There is generally more brood to be found in the hive in January and February, when the weather is very cold or after the temperature has been very low, than during a continuance of mild weather. Dr. Krasiekie acknowledges this fact, but explains it in a peculiar manner by saying, "that because bees consume more food when temperature is low the production of chyle would also be greater." All this and more than this seems to me to be no more than theory and speculation, and not supported by facts or experience.

My own experience, extending over a period of fifty years, and the experience of many practical and observing bee-keepers, go quite in an opposite direction, and prove that the colder the winter or weather is the less honey is consumed by bees, and this stands to reason as well as experience. In cold winters bees sit closely together for weeks and hardly move. There is in such seasons little waste and wear, and little food is required to make good the waste. In warm winters there may be heard a hum night and day in good hives—the bees set loosely together, move about amongst one another, and often take outdoor exercise. The waste of body is greater, and a greater quantity of food is required and eaten to make good the waste.

The last warm winter is referred to by Dr. Dzierzon in support of his new theory. English bee-keepers know that during the last open winter the consumption of food was great—unusually great, and hives were unusually light in the spring months of this year. That bees consume much more food in warm winters than they do in cold ones is a fact well known long ago, and every year's experience confirms it. This theory of Dr. Dzierzon reminds me of the strange notion of a Swiss clergyman, who boldly stated that two swarms of bees united do not eat more in winter than each of the swarms would do if kept separate. This was received as the truth by a large circle of apiarians, some of whom tried to explain it on scientific principles. Of course they failed, and when told years afterwards that ten thousand bees required twice as much food as five thousand, they believed this and said no more about the discovery of the Swiss clergyman.

If bees eat more food and breed sooner in a cold house and in a cold winter than they do in a warm house and winter, the system of contracting space in bar-framed hives cannot be too soon abandoned and condemned, and hives with cavity walls are quite a mistake if Dr. Dzierzon's views are correct.

In all attempts to manage bees successfully apiarians should try to keep step with the laws of Nature as nearly as possible. In Great Britain some winters are too severe for bees; in America almost all winters are. Where bees came from to this country I cannot tell, but evidently they are natives of a warmer climate than ours, and need often a little artificial treatment here—viz., protection from cold and wet, and need some feeding. By covering hives well during the winters no bee-keeper need be afraid of losing his hives in this country by frost, and if the coverings be kept on during the spring months his bees will breed sooner and faster than they would do in hives not so well and warmly covered. All this has been proved again and again, and let those of doubtful mind put the matter to the test next winter and spring, and they will lose all doubts on this point. But as we have stated, warmth and motion go hand in hand, and cause a greater consumption of food in hives to make up the wear and waste of motion. All this stands to reason, and reason will yet prevail.—A. PETTIGREW.

COMB FOUNDATION v. FEEDING BEES.

IN your issue of the 17th inst., in an article referring to the autumn treatment of bees, Mr. Pettigrew makes the following suggestion:—"Let others try the experiment of putting two swarms separately into empty hives. Let one of the hives have 1 lb. of the brood foundation, and the other 10 lbs. of sugar made into syrup. Let all the syrup be given to the hive in seven days. Then examine both and see which is the better, which has most perfect comb, which the heavier of the two." According to my experience, if you were to give the hive with the 1 lb. of foundation 10 lbs. and the other 20 lbs. of sugar made into syrup, and then examine them at the end of seven days, I think you will find the one with 1 lb. of foundation to have the most perfect comb. On the 3rd of June last I had a large swarm, which I put into a 9-bar-frame hive with 6 inches of foundation to each frame. Three days afterwards, wishing to put in a Ligurian queen, I was surprised to see every foundation worked out into a perfect comb, and at the end of seven days every frame was filled. I have now a very strong stock of yellow bees, and there is scarcely a black one to be seen in the hive, although the swarm weighed 7½ lbs. I ought to have mentioned that the first and second night after swarming I gave them 1½ lb. of syrup, but none afterwards.—M.

BRITISH BEE-KEEPERS' ASSOCIATION.

WE have much pleasure in publishing the prize list of the eighth annual Exhibition of this flourishing Association, held at the Royal Horticultural Society's Gardens at South Kensington on August 3rd, 4th, 5th, 7th, and 8th, and regret the delay which has arisen in consequence of the illness of our reporter, whose notes on the several classes shall appear in a future issue, together, we hope, with the class lists of the successful candidates for the diploma of the Association.

tion (after two days' examination) as experts in bee-learning and manipulation for the various county associations affiliated to the parent society.

Class 1.—For best stock of Lignrian bees. First, Messrs. Neighbour & Son; second, T. B. Blow; third, G. Bertoli, Verallo-Sesia, Italy.

Class 2.—For the best stock of English bees. First, T. B. Blow; second, Messrs. Neighbour & Son.

Class 3.—For any other variety of bees. First, T. B. Blow, Carniolan; second, T. B. Blow, Cyprians; third, Messrs. Neighbour, Carniolan.

Class 4.—For the best observatory hive stocked with bees and queen. First, Messrs. Neighbour; second, H. Gibbons; third, T. B. Blow. Highly commended, Messrs. Abbott Brothers.

Class 5.—For the best moveable-comb hive complete for summer and winter use. First, F. Search; second, Messrs. Abbott; third, T. M. Hooker. Commended, A. Benthall.

Class 6.—For the best frame hive for general use, price limited to 15s. First, Messrs. Dines; second, J. Best; third, T. B. Blow. Commended, A. Blake.

Class 7.—For the best and cheapest frame hive for cottagers complete, price limited to 10s. 6d. First, Messrs. Dines, Maldon; second, A. Blake, Wickham Market; third, J. Best. Highly commended, Mr. Baldwin; commended, Messrs. Abbott Brothers.

Class 8.—For the best frame hive the work of an amateur or cottager. First, A. Benthall; second, J. S. Brooks; third, D. Stewart.

The three prizes in each of the above classes were:—First, silver medal; second, bronze medal; third, certificate.

Class 9.—For the best straw hive, price limited to 5s. Bronze medal. First, T. Sells. Highly commended, Messrs. Abbott Brothers.

Class 10.—For the neatest and best rack containing 1 lb. or 2 lb. sections. First, Messrs. Abbott Brothers; second, T. W. Cowan; third, A. Blake.

Class 11.—For the best rack containing 1 lb. or 2 lb. sections for cottagers' use on a straw skep. First, T. B. Blow, Welwyn; second, T. B. Blow; third, Messrs. Abbott Brothers.

In classes 10 and 11 the prizes were silver and bronze medals and certificate.

Class 12.—For the best exhibition of super honey from one apiary; prizes, 40s., 20s., 10s. First, J. H. Brown; second, S. Thorne; third, R. Thorpe.

Class 13.—For the best super of honey; material, wood, straw, or glass in combination with either; 20s., 15s., 12s. 6d. First, H. S. Heath; second, J. Lighton; third, T. Sells.

Class 14.—For the best glass super of honey; 20s., 15s., 12s. 6d. First and third, W. Woodley; second, J. Lighton.

Class 15.—For the best twenty-four 2 lb. sections of comb honey 30s., 20s., 15s., 10s., 5s. First, J. H. Brown; second, T. Sells; third, S. Thorne; fourth, R. Thorpe; fifth, J. H. Brown.

Class 16.—For the best twenty-four 1-lb. sections of comb honey, 25s., 20s., 15s., 10s., 5s. First, A. Rusbridge; second, S. Thorne; third, J. Garratt; fourth, Rev. J. B. Hnmfrey; fifth, J. H. Brown.

Class 17.—For the best twelve 2-lb. sections of comb honey, 20s., 10s., 7s. 6d., 5s. First, Miss Gayton; second, R. Thorpe; third, J. H. Brown; fourth, A. Rusbridge.

Class 18.—For the best twelve 1-lb. sections of comb honey, 20s., 10s., 7s. 6d., 5s. First, J. W. Measures; second, Rev. A. Welch; third, S. Thorne; fourth, A. Rusbridge.

Class 19.—For the best twenty-four 2-lb. glass jars of extracted honey, 20s., 12s. 6d., 7s. 6d., 5s. First, K. Allen; equal third, J. H. Brown and R. Thorpe. Second and fourth withheld.

Class 20.—For the best twenty-four 1-lb. glass jars of extracted honey, 20s., 12s. 6d., 7s. 6d., 5s. First, Miss Gayton; second, R. Scott; third, J. Garratt; fourth, T. Sells.

COMB FOUNDATION.

Class 21.—For the best thick comb foundation, worker cells, not less than 2½ lbs., price per pound to be attached. Prize, bronze medal, Messrs. Abbott Bros. for Root's natural-based foundation.

Class 22.—For the best thin comb foundation for supers, not less than 2½ lbs., price per pound to be attached. Prize, bronze medal, Messrs. Abbott Bros. for natural-based.

Class 23.—For best, cheapest, simplest appliance for making comb foundation, to be exhibited at work. Three prizes—silver and bronze medals and certificate. Messrs. Abbott Bros. silver medal. Second and third withheld.

COTTAGERS' CLASSES.

Class 24.—For the best super of honey, sectional supers excepted. First, W. Woodley; second, J. Walton; fourth, E. C. Youens. Third withheld.

Class 25.—For the best twelve 2-lb. sections of comb honey, 20s., 15s., 10s., 5s. First, J. Walton; second, J. K. Filbee; third, G. B. Lacey. Fourth withheld.

Class 26.—For the best twelve 1-lb. sections of comb honey, 20s., 15s., 10s., 5s. First and second, W. Woodley; third, J. Walton; fourth, W. Martin.

Class 27.—For the best exhibition of extracted honey in twelve 2-lb. glass jars, 20s., 12s. 6d., 7s. 6d. First, M. Wood; second, J. K. Filbee; third, J. Walton.

Class 28.—For the best exhibition of extracted honey in twelve 1-lb. glass jars, 15s., 12s. 6d., 7s. 6d. First, M. Wood; second, G. Dossett; third, J. Walton. In the foreign and colonial classes, 29, 30, 31, and 32, there were no entries.

COMESTIBLES.

Class 33.—For the best mead, metheglin, &c., honey to be the principal ingredient, recipe attached, and to become the property of the Committee. Bronze medal and certificate. First and second, T. W. Cowan; highly commended, R. Scott.

MISCELLANEOUS.

Class 34.—For the best collection of hives, bee furniture, &c., no two articles to be alike. Silver and bronze medals and certificate. First, Messrs. Neighbour and Son; second, T. B. Blow; third, A. Rusbridge.

Class 35.—For the best honey-extractor. Silver and bronze medals and certificate. First, second, and third, T. W. Cowan.

Class 36.—For the best sample of beeswax, not less than 6 lbs., from exhibitor's own bees, 10s., 7s. 6d., 5s., 2s. 6d. First, S. J. Baldwin; second, T. Sells; third, Abbott Bros. Fourth withheld.

Class 37.—For the best and cheapest pair of honey jars, covers and fastenings complete, to contain 1 lb. and 2 lbs. each, 10s., 7s. 6d., 5s. First, T. W. Cowan; second, Abbott Bros.; third, Neighbour & Son.

Class 38.—For the best crate for conveying section honey by rail or otherwise. Silver and bronze medals and certificate. First, second, and third, T. W. Cowan.

Class 39.—For the best crate for conveying extracted honey in glass jars by

rail or otherwise. Silver and bronze medals and certificate. First, T. B. Blow; second and third, T. W. Cowan.

Class 40.—For any invention calculated to advance bee-culture. Silver or bronze medals, at the discretion of the Judges. First, T. W. Cowan, for his foundation-fixer; second, T. B. Blow, for a feeding bottle; extra second, F. Lyon, for Dr. Pine's removeable frame-ends; commended, T. W. Cowan, for foundation-fixer; commended, Captain R. N. Gilbert, for bee exhibition tent.

In Class 41, for microscopic slides illustrating natural history of the bee, no entry.

Class 42.—For the best display of dried British bee flora. Silver medal to Messrs. Abbott Bros.

In Class 43, for diagrams of honey bee, no entry.

DRIVING COMPETITION.

Class 45.—For the competitor who shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep, and capture and exhibit the queen, 20s., 10s., 5s. First, J. K. Filbee; second, J. Walton; third, W. Martin.

TRADE CATALOGUES RECEIVED.

Louis Van Houtte, Ghent, Belgium.—*Catalogue of Azaleas, Rhododendrons, &c.*

F. C. Heinemann, Erfurt.—*Catalogue of Plants and Fruits.*

Barr & Son, 34, King Street, Covent Garden, London, W.C.—*List of Daffodils and Select Bulbs.*

J. Smith, Label Factory, Stratford-on-Avon.—*Illustrated List of Labels.*

James Veitch & Sons, King's Road, Chelsea.—*Catalogue of Bulbs (Illustrated).*

Thomas S. Ware, Hale Farm, Tottenham.—*A B C Bulb Guide and List of Hardy Perennials.*

B. S. Williams, Upper Holloway, London, N.—*General Bulb Catalogue.*

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Bulbs (Illustrated).*



*** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

TO CORRESPONDENTS.—In consequence of the above request (that matter for publication should not be addressed to Dr. Hogg or to anyone else on the staff of this paper) being so much disregarded, grave inconveniences frequently arise, and serious delay is caused in attending to matters that would be dealt with promptly and more satisfactorily if addressed to "the Editor." We earnestly desire that correspondents will conform strictly with our request in future, whether they are personal friends of any members of the staff or not.

A "Creeping" Fern (*Cranfordian*).—We have not received any specimen of the Creeping Fern which you ask us to name.

Violets in Frames (*C. R. W.*).—An article will shortly be published on this subject by a successful cultivator of these favourite flowers, which we think will give all the information you need.

Iconography of Azaleas (*E. L. R.*).—This work can be had from the address named, and at the price quoted in the advertisement which you have enclosed. It will make a beautiful volume. Ten numbers have been published. The first name you have employed in describing the Campanula is inaccurate.

Melons all the Year (*J. L.*).—You will not find it profitable to attempt to grow Melons as you propose, and you can devote your house to more useful purposes. You had better abandon your project, as if you attempt to carry it out the experiment will end in disappointment, while labour will be misapplied and fuel wasted. Water Melons are grown the same as other Melons, but are not so well worth growing as the best varieties in general cultivation.

Exhibiting Cut Flowers (*H., Harpenden*).—All the flowers you name are eligible for exhibiting in the class to which you direct our attention, as they are all herbaceous and usually grown for garden decoration. Some judges, however, might object to the *Eucomis*, regarding it as a greenhouse plant, and you had perhaps better try and make up the requisite number without it; still, according to the strict reading of the class it ought not to be excluded.

Pruning Fir Trees (*Susser*).—The present is a good time for shortening the branches for the purpose you have in view. It is not at all uncommon for the lower leaves of *Tropeolum speciosum* to wither when the plants commence flowering; but the tops do not usually wither if the plants have the requisite support. Although they need much water, it is possible to overwater them in adhesive and undrained soil. Perhaps the wind has injured the shoots.

Peas (*Perry Hill*).—It is impossible to determine the names of Peas from a pair of pods simply. You have not even stated the heights of the plants.

Perhaps No. 1 may be *Ne Plus Ultra*, and No. 2 resembles *Laxton's Supreme*; but we do not pledge ourselves to accuracy of these names, nor do we undertake to name such vegetables as Peas, Beans, and Potatoes.

Essay-Writing (*W. J. S.*).—If you are not in possession of botanical knowledge we fail to see how you can write an essay on the subject you name that would be creditable to yourself or convey sound and accurate information to your hearers. It would be a much safer course for you to write an essay on some practical subject that you understand, and leave scientific matters to scientific people. From these you might learn, but you cannot teach satisfactorily on a subject with which you are admittedly ill acquainted, and you would be sure to betray yourself if you made the attempt. Balfour's or Henfrey's "Manuals of Botany" if studied for a year might aid you in the preparation of such an essay as that to which you refer, as we presume you do not intend to simply copy from works and thus read an essay which would not be your own.

Ageratum (*Jack*).—We do not know an *Ageratum* having either yellow or buff-coloured flowers. There are varieties with white, flesh, and lavender-coloured flowers, some almost deepening to blue, and one variety has variegated foliage.

Removing Trees (*A Fourteen-years Subscriber*).—If you are neither a market gardener nor a nurseryman you cannot legally either remove or cut down trees, and it would be especially unwise for you to interfere with them after you have received notice to quit. Let them alone, or you may incur trouble that might prove serious.

Flanders Spinach (*C. R. L.*).—Some confusion exists in regard to the nomenclature of Spinach as sold by seedsmen. We have not a doubt that the seed you have obtained is suitable for sowing at the present time for affording a winter and spring supply of this wholesome vegetable. The true Flanders Spinach seed is more or less round, and the leaves are also roundish and very large. It is usually sown in the spring (like the ordinary round Spinach) for summer use, but is nevertheless hardy; but the prickly-seeded variety is more commonly sown in the autumn, and is undoubtedly suitable for that purpose. If the variety you have obtained is an improved form of this you may sow it with confidence. Possibly it is a selection of the firm from the Flanders Spinach, but we cannot tell in the absence of seeds and plants. The dictionaries you name are identical. There is a fourth edition of the "Vine Manual" published. We do not know of a better edition of the "Peach Pruner" than the one you possess. We cannot answer questions by post.

Exhibiting Cut Flowers (*J. N. F. W.*).—According to the strict interpretation of the wording of the class, which you quote, we think you can do what you suggest, but we should not think the plan advisable, as you would afford the judges an excuse for passing your stand in the case of close competition. Show each variety in a separate bunch. You can include two or three distinct varieties of Dahlias, Stocks, and Phloxes, and cannot be properly disqualified for doing so, as, if the authorities of the show regard distinct kinds of flowers, they should have said so, in which case you could only stage one bunch of Phloxes, one of Dahlias, and one of Stocks.

Pear Leaves Discoloured (*J. H. S.*).—The leaves arrived in a very dried state and partially crushed to powder. The Pear appears to have been attacked with the blister fly (*Tinea clerckella*), which is referred to in a reply to another correspondent, and also with the black fungus. Dissolve 3 ozs. of soft soap in a gallon of water, adding 1 or 2 ozs. of sulphur, and apply this at a temperature of 120° with a syringe, making both sides of the leaves quite wet. This will, we think, cleanse the foliage if used on three or four evenings consecutively. Are the roots of the tree working freely in good soil? The leaves sent are small and indicative of debility.

Various (*A. B.*).—Your young plants of *Iresine Herbistii* will not continue healthy if they are long subjected to a temperature of 35° or 36°. We have wintered them in a greenhouse, placing them at the warmest end where the temperature was usually about 45°, and seldom as low as 40°. Being stove plants they require more heat than *Pelargoniums* and *Verbenas*. You had better insert more cuttings than you require with the object of providing a margin for losses, which are almost sure to occur under the conditions you name. We do not cut the tops off *Carnations* when layering, and therefore do not recommend the practice. *Isolepis gracilis* is a miniature Sedge; it is a native of India, but succeeds well in a greenhouse, and is valuable for decorative purposes. The Tufted Hair Grass of this country is *Aira cæspitosa*. The annual of which you have sent flowers is *Kaulfussia amelloides*.

Duke of Buccleuch Grape (*F. J. M.*).—The above is the name of the Grape of which you have sent berries of average merit. The fruit is rather liable to be spotted, and the Vine does not always grow and bear well; we have, however, seen many healthy Vines and fine crops, the largest bunches being usually produced when the laterals have not been pruned very closely. It is essential that the growths be thinly disposed during the summer so as to insure the maturation of the wood, the Vine being somewhat succulent in its nature. Great care in ventilation is requisite during the season of growth, so that sudden transitions of temperature, and especially sharp draughts, are avoided, while the atmospheric moisture must be kept as equable as possible. It is a very fine Grape.

Caterpillars on Oaks (*Lady William*).—The appearance of the leaves proves that they have been attacked by the caterpillar of a small moth, very probably *Tinea onosmella*, or one of similar habit. This is just one of those instances where, owing to the caterpillar subsisting within the leaf hidden by a blotch or fold, applications are of little service, although some have advised that young Oaks which are likely to be attacked because they are near infested trees, should be copiously syringed with a soapy solution, or with one of the "compounds" now frequently employed. The best remedy is Nature's in this case—namely, small birds, which have been seen to split open the leaves and carry off the caterpillars, and should therefore be encouraged. We do not think, however, that the insect is so far detrimental as to endanger the life even of a young Oak, though the trees are seriously disfigured. The caterpillars may be less plentiful another year.

Applying Manure Water to Vines (*J. M. B.*).—Though your Vine leaves have done their work and the Vines are going to rest, the roots will remain active for some time yet; it will, therefore, not be wise to apply strong liquid manure to your border till the middle of November, or till the temperature of the border has fallen considerably and the roots are dormant. Should your border be the least dry, and the drainage as it ought to be, a thorough soaking of pure cold water given now and another in October will lower the temperature and also clear out any sourness, and prepare it for being manured by liquid applications. As there is "very little manure" in your border this may hardly be necessary for cleansing, but will do good. Six weeks before using the urine add to it three times its own bulk of water. Do not forget to supply lime.

Neglected Gooseberry Bushes (*A Suburban Amateur*).—If the bushes bear pretty well, as we presume they do (as you say you cannot easily gather the fruit from the centre), and are also healthy and make tolerably free growth, we should not do as you suggest, but should remove the suckers, using a spade if necessary for that purpose, and thin out the heads. But you must do this judiciously. If the bushes are really old and have not been pruned for some years, it is a mistake to prune them severely, as most of the inner branches are spurless and will remain so, the fruit being borne chiefly on the young wood. We should at once thin out the branches just sufficient for you to pass your hand between those remaining, not shortening the young shoots except for the purpose of rendering the bushes somewhat symmetrical. Old Gooseberry bushes often bear prodigiously on the young wood which is the reverse of luxuriant; indeed the finest crop we have seen this year was on bushes twenty years old, which are pruned but slightly and in the manner indicated. If you want large fruit you had better plant young trees.

Planting an Orchard House (*J. E.*).—We scarcely understand your case. We presume your house is a lean-to having a back wall 12 feet high. In our view the most profitable mode of planting such a house, 20 feet by 12, would be to make a good border the entire width of the house, and plant trees for covering the wall, parallel with, and a foot from it, having a trellised path for attending to the trees. On the opposite side of the walk we should have a trellis commencing at the front and arching over to the path, affixing it there at 3 feet from the border and the same distance from the wall. You would thus provide a trellis 9 feet wide, which, when covered, would not shade the trees on the wall. But, then, you ask if you "could plant two rows of trees (one on each side of the walk) trained to trellises across the border." This is what we cannot understand, nor do we think it is understandable without a rough ground plan of the house showing the position of the walk. We think a house so low in front and so narrow not well adapted for cross trellises, but in very large structures they can be very profitably employed. You also appear to want half a dozen trees in pots. To provide a suitable position for these we can only suggest that the trellis be 14 feet instead of 20 feet long; you would then have room for three or four trees in pots across each end. Another plan of occupying such a house is to have no trellis, but fill the house with trees in pots, covering also the back wall. This is a question of taste, cultural skill, and labour. The plan we first proposed would entail the least labour, and in all probability would result in the production of the greatest quantity of the finest fruit. Nor need this be had at the sacrifice of variety, as the trees, if desirable, can be grown as single cordons, planting them 20 inches apart along the foot of the wall and the front of the trellis. If you particularly desire cross trellises they should not be less than 4 feet apart, and they would probably answer fairly well.

Heliotropium peruvianum (*C. R. L.*).—The above is the name of the "old lilac Cherry Pie Heliotrope" to which you refer. It is a native of Peru and requires to be kept in a greenhouse during the winter, preferably where the temperature seldom falls below 40°, a minimum of 45° being better. Plants growing in flower beds do not what gardeners term "lift" well—that is, when taken up and potted most of them die. The best plan is to strike cuttings now by inserting short-jointed young shoots 3 inches long in sandy soil in pots, to be kept close, moist, and shaded in a frame until they are rooted, then removing them to a greenhouse. In a warm and light house healthy established plants continue flowering throughout the winter. There are many varieties of *Heliotropes* in cultivation, but none is sweeter and better adapted for winter flowering than the "old sort." Miss Nightingale, Miss Lewington, White Queen, and Duchess of Edinburgh may be named among other good varieties. For general information, concisely given, on fruit, flower, and vegetable culture, our "Garden Manual" would be useful, price 1s. 6d. Sutherland's "Hardy Herbaceous Plants," published by Blackwood, would also probably be of service to you. Every week you may derive sound information on a variety of subjects from our columns, and we answer questions that are submitted to us on all gardening matters.

Figs not Swelling (*L. J. K.*).—We are glad to learn you have been so generally successful with the fruit trees in your greenhouse. The reason why all the Figs did not swell is not easy to determine without an acquaintance with the condition of the trees and the circumstances under which they are grown. If the soil has been too dry on any particular occasion the growth of the fruit would be arrested, as it also would be if the soil were not kept fertile by top-dressings or applications of liquid manure. Again, if the growths were not stopped above the second crop all the fruit would not advance to maturity, and a portion would also cease swelling if the trees were overcrowded with growths and foliage. After a careful perusal of your letter we conclude that either the sap which has supported the embryo fruits has been appropriated by growths which should have been stopped, or that the soil has become impoverished. What we refer to as the fruit, and what is understood as such, is not the fruit, but the receptacle containing it. At the end an aperture forms, and usually opens before the young Figs attain half their full size; this, no doubt, is for the purpose of fertilisation, which cannot be effected if the flowers are sealed up. It is essential that the receptacles should open, and no doubt they have opened in those instances when the Figs have attained their full size and have ripened satisfactorily. You will find much that is interesting on the fertilisation of the Fig, with illustrations, in an issue of January 31st, 1878. If you do not possess this number it can be obtained from this office post free for 3½d.

Pear Tree Leaves Blistered (*Idem*).—The leaves you have sent have been attacked by the Pear Tree Blister Moth, *Tinea clerckella*. The caterpillars of this raise dark brown blisters on the leaves. The moth is active and minute, shining like pearly satin, the wings having an orange ground spotted with black and other colours. It appears in May. To check this disease it is advisable to wash the tree with soapsuds the end of May or beginning of June, when the moths are pairing and laying eggs for a future progeny; and if a very valuable tree be only partially attacked, the blistered leaves might be gathered and burnt as soon as any spots began to appear in August.

Burned Clay (*H. W.*).—The beneficial action of burned clay is mainly due to its altering the texture of the soil, and its application to heavy soils is attended with great success. It acts by rendering such soils less adhesive, consequently more permeable to air and water; and the clay in burning has its constituents changed so that the ashes contain a greater proportion of alkalies, more especially of soda and potash, than unburned clay, a considerable portion of the alkaline substances in the latter being liberated in the process of burning. Much, however, depends on the state of burning, for if the clay be exposed to a great heat it will be converted into a brick-like mass, and its alkaline substances be rendered less soluble than before, hence the burning should not be more than to cause it to readily crumble down. The best way to use it is to spread it over the surface and work it in by digging or trenching, so as to mix it with the soil to a depth of not more than 18 inches. The more thoroughly it is incorporated with the soil the better, and in no case should it be used in

layers. In the course of a few years more clay may be taken from beneath the ameliorated surface soil and burned, and more of the unburned clay brought up and mixed with the burned, so as to improve the texture and fertility of the soil by its increased depth.

Asphalt Walks (*Idem*).—To satisfactorily asphalt garden walks and carriage drives, a foundation should be formed of rubble, which for a walk should not be less than 3 inches thick, and for a drive not less than 6 inches, being coarser for the latter than the walk, and in each case the necessary incline should be given the surface of the rubble as will be required by the walk or drive, and at the sides should be at intervals drains with their covers and gratings to carry off the surface water. The rubble should be laid so that its surface will be about 5 inches below the level of the grass, or in the case of Box or other edgings it will need to be about 3 inches, so as to raise it when the asphalt is placed on to the level of the surrounding soil. Then take three parts ashes from a furnace with small clinkers, the whole being quite fine to form a smooth surface; to this add two parts old lime rubbish, but that is not necessary if the ashes be fine enough to absorb the tar. Place the materials in a heap, and mix with boiling coal tar until it is of a consistence similar to stiff mortar. Place on the rubble 3 inches thick and make it smooth, firming it well down, sprinkling fine gravel over it, pass a light roller over it, and in a few days it will be quite firm. Such walks or drives, however, are liable to become soft in hot weather and give off a disagreeable odour. The quantity of tar depends on the porosity of the ashes, and the cost varies proportionately, also depending upon the cost of material, &c., in different localities.

Fuchsias Unhealthy (*C. W.*).—Your plants are devoured with thrips. Dissolve 2 ozs. of soft soap in a gallon of water, and to this add a pint of strong tobacco water, and with this mixture syringe your plants every ten days. If the plants are small you had better dip them in the solution. If they are large lay them on their sides on a mat and drench them thoroughly. The mixture should be used at a temperature of 100° to 120°.

Hautbois Strawberry Culture (*W. M.*).—Make a fresh plantation in rich deep soil, taking well-rooted runners of the current year, planting them in rows 2 feet apart, and 18 inches from plant to plant. Next season do not remove the runners, but allow them to root between the rows, and after the crop is gathered and the runners well rooted cut away the old plants, leaving the runners between the rows, keeping them to a row about a foot wide, manuring the space in autumn where the old plants have been growing. Alpine Strawberries may be planted now, but better plants are had from seed sown in gentle heat in spring, and the seedlings hardened off and planted out when ready. They will fruit in summer up to autumn; or seed sown now and the plants wintered in a frame, planting them out in spring, will give you earlier-fruited plants.

Names of Fruits (*G., Diss.*).—The striped Apple is Duchess of Oldenburgh, and the other Red Astrachan.

Names of Plants (*G. D.*).—*Centaurea suaveolens*, also known as the Sweet Sultan. (*T. F. L.*).—7, *Pteris serrulata cristata*; 9, *Adiantum trapeziforme*; 10, *Pteris erecta*; 12, *Adiantum concinnum*; 13, *Pteris longifolia*; 15, *Gleichenia pectinata*. We have repeatedly stated that we do not undertake to name more than six specimens at a time, and, moreover, the majority of those you sent were very unsatisfactory, nearly all the fronds being without spores. (*H. H.*).—1, *Solidago Virgaurea*; 2, *Reseda lutea*; 3, *Euphorbia helioscopia*; 4, *Specimen insufficient*; 5, *Galium aparine*. Notcutt's "Handbook of British Plants," published at this office, price 3s. 6d., post free 3s. 8d., would suit you. (*R. H.*).—1, *Lysimachia vulgaris*; 2, *Polygonum aviculare*; 3, *insufficient*; 4, *Lapsana communis*; 5, *Achillea millefolium*; 6, *Silene maritima*.

Standard Frame Hives (*Inquirer*).—At a meeting of the British Beekeepers' Association, held on February 15th, 1881, it was unanimously resolved that the outside dimensions of the standard frame should be 14 inches long, 8½ inches deep; the top bar to be three-eighths of an inch thick, bottom bar one-eighth of an inch thick; side bars a quarter of an inch thick. These dimensions do not refer to anything outside of the rectangle. It was also resolved that standard frames duly stamped should be provided at 1s. each. Frames are usually made seven-eighths of an inch wide, five-eighths of an inch being allowed between them. Seasoned deal is suitable wood for bar-frame hives. Our Bee-keeping Manual, post free 4½d., and "Modern Bee-keeping," price 6d. (Longmans, Green & Co.), would be useful to you if you do not possess them; they were both, however, published anterior to the decision referred to.

COVENT GARDEN MARKET.—AUGUST 23RD.

A GOOD supply of Peaches reaching the market, but owing to the slackness of trade realising very low prices. Large quantities of French fruit still arriving.

		FRUIT.					
		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	0	0 to 0	Lemons.....	case 20	0 to 30	0
Apricots.....	doz.	1	0	Melons.....	each	2	0
Cherries.....	½ sieve	0	0	Nectarines....	dozen	4	0
Chestnuts.....	bushel	0	0	Oranges.....	100	6	0
Currents, Black..	½ sieve	5	0	Peaches.....	dozen	2	0
" Red.....	½ sieve	2	6	Pears, kitchen ..	dozen	0	0
Figs.....	dozen	4	0	dessert.....	dozen	1	0
Filberts.....	lb.	0	6	Pine Apples, English	lb.	3	0
Gobs.....	100 lb.	0	0	Raspberries.....	lb.	0	3
Gooseberries....	½ sieve	0	0	Strawberries....	lb.	0	6
Grapes.....	lb.	1	0				

		VEGETABLES.					
		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	Lettuces.....	score	1	0 to 1
Asparagus.....	bundle	0	0	Mushrooms.....	punnet	1	0
Beans, Kidney....	100	1	0	Mustard & Cress ..	punnet	0	2
Beet, Red.....	dozen	1	0	Onions.....	beh.	0	6
Broccoli.....	bundle	0	9	Parsley.....	doz. bunches	3	0
Brussels Sprouts..	½ sieve	0	0	Parsnips.....	dozen	1	0
Cabbage.....	dozen	0	6	Peas.....	quart	0	10
Capicums.....	100	1	6	Potatoes.....	cwt.	6	0
Carrots.....	bundle	0	4	Kidney.....	cwt.	6	0
Cauliflowers.....	dozen	2	0	Radishes.....	doz. bunches	1	0
Celery.....	bundle	1	6	Rhubarb.....	bundle	0	4
Coleworts.....	doz. bunches	2	0	Salsafy.....	bundle	1	0
Cucumbers.....	each	0	4	Scorzoneria.....	bundle	1	6
Endive.....	dozen	1	0	Seakale.....	basket	0	0
Fennel.....	bundle	0	3	Shallots.....	lb.	0	3
Garlic.....	lb.	0	6	Spinach.....	bushel	3	0
Herbs.....	bundle	0	2	Tomatoes.....	lb.	0	2
Leeks.....	bundle	0	3	Turnips.....	bunch	0	6



POULTRY AND PIGEON CHRONICLE.

BREEDING HUNTERS AND ROADSTERS.

THIS is a subject which will certainly repay the home farmer and agriculturist for any attention he may devote to it. Under present circumstances connected with the occupation of land, products of various kinds which were formerly found profitable have lately proved the reverse; in consequence the landed proprietors who may have land on hand instead of being occupied by tenants will do well to carefully consider what will sell best in the market, and at the same time prove well adapted to the soil and climate on which the farm may be situated. To some gentlemen proprietors the breeding of horses adapted for hunting and as roadsters will form an interesting employment, and may also be made profitable as a farming transaction if proper attention is given to it. This subject requires to be considered in its economical as well as its scientific and practical bearings; yet it is a fact that no amount of foresight and skill will enable the breeder of hunting horses, &c., to obtain his chief object with more than a fair proportion of his produce. Therefore, in order that the breeder may realise a fair profit the average horse must pay its expenses, and in aiming to produce a horse of such a stamp as will realise the highest price for hunting purposes the breeder is operating on the safe side, and in the way most likely to exclude the chances of failure, simply in consequence of the animal which just misses the character of the best class of hunter is of a style which is available for general purposes.

When breeding is conducted upon this principle the style or type specially sought after should be that of the grand weight-carrying hunter. To explain what is understood by the term "hunter" it will be necessary to consider the character of English horses, the different breeds or classes into which they may be divided, and also into the history and progress of the race. The hunter has never constituted a distinct breed; in that respect he differs entirely from the pure blood horse, whose genealogy has alone obtained a reliable record. The long-established renown of the English and Irish hunter has depended, and must always depend, on the judicious crossing of breeds, and to which we have alluded in an article in this Journal under the heading of "Cross-breeding of Horses," in the numbers dated the 16th, 23rd, and 30th of March last, and for various and important statements relating thereto we refer our readers. But upon this occasion we propose to give some quotations from the prize essay on the subject of "Breeding of Hunters and Roadsters," written by J. Gamgee, sen., and published in the Journal of the Royal Agricultural Society of England in 1863. This essay is the best we have seen upon the subject, and contains a combination of ideas and statements which are not only eminently scientific but thoroughly practical.

It is surprising that the value and importance in the rearing of hunters, as they may be called the popular horse amongst the country gentlemen and various members of the middle classes of society, has not resulted in an attempt to form and maintain a general stud book in the same way that it has been for the blood horse during a long period. Difficulty is a word which frequently stands in the way of new measures relating to various matters in practical everyday life, but the way was never so plain and easy of accomplishment for establishing a register or stud book as at present. It is important to consider that the Royal Agricultural

Society of England, the Royal Highland Agricultural Society of Scotland, and similar institutions in Ireland, may be made to furnish the basis of an example by taking and selecting carefully the names, and as far as possible the pedigrees, of those animals which for years past have obtained the approval of the Judges, and to which the prizes have been awarded by the principal agricultural societies throughout the kingdom in the hunter classes.

Upon this matter Mr. Gamgee shall speak for himself. He states—"The example set in the establishing of herd books, and registrations of the produce of greyhounds and other dogs, encourages me to think that the difficulty in the more important case of the horse is more imaginary than real. Indeed, the longer period during which the horse lives and continues to propagate, and the relative slowness with which changes are effected in the race, render registration in their case more easy as well as more imperative. If the question be raised, How shall we get a satisfactory starting point? our past history will give the best answer. With the increased demand for exportation of the finest mares the difficulty increases of supplying their places, and even producing stallions of their class; indeed, the course of events leads rather to total dispersion than to mere deterioration or numerical scarcity. Though I submit that good blood stallions are alone reliable for the production of hunters, and that the mares should also be closely up to the required standard for speed, and whilst power and stamina should form the leading features in their character, I am in no way inclined to dogmatise on the exact amount of pure blood which affords the best promise of combining all the essentials in the clever hunter."

These observations contain one of the strongest arguments that can be used for the registration of hunters by a stud book; for whilst so many of our best class of hunting mares are exported to other countries and realise long prices, the object of the stud book may be said to be doubly beneficial, not only in maintaining by selection and pedigree the most valuable animals, but at the same time is calculated to maintain a high value and paying price to those who engage in the breeding, rearing, and feeding of choice hunters.

In another passage Mr. Gamgee says—"Greater changes have been made in the breeding and management of horses in England during the last fifty years than in any similar period on record. Few good judges, and especially among those who can remember longest, see reason for congratulation on comparing the present with the past, particularly with reference to the hunter and the high-class hack and carriage horse. Meanwhile, in those animals which multiply more rapidly—such as dogs, pigs, fowls, and even sheep—great changes have been effected by individual enterprise in a few years; whilst the horse, the favourite of princes and nobles, appears to require to be specially fostered by the patronage of the great, or by union and concert among the many."

These observations point in one direction; but on various estates the practical carrying-out of the management, however it may be supervised by noblemen and gentlemen, devolves very frequently upon the home farmer or agent. In order that not only the objects of proprietors may be followed out, but that in doing so the home farmer must look to profits; for although the breeding and parentage of the animals bred may be the result of correct principles, yet the profits of breeding cannot be fully attained without especial care and management in rearing the young animals as well as the mares in foal, for with care useful horses may be reared from indifferent stock, whilst without it the produce, though well descended, will not be worth their cost. In feeding young stock extremes should be guarded against. Liberal keep on sound grass, with corn and hay in moderation, proves the most economical, for when more food be given than the system can assimilate stout and fat animals of great bulk will be produced at the expense of strength and stamina, and the digestive organs frequently injured. Still, liberality in feeding must be the order of the day if we design to apply early maturity to horses as well as cattle, and we certainly contend that it should be so; for as regards profit, with special care and freedom from accident, which are the points of management in the hands of the home farmer, there is no better period of selling the off-going stock than at a little over two years old. To accomplish this certain rules apply in connection with exercise, shelter, and warmth. For the first, space and liberty combined with security are most essential. With respect to temperature, it may not be desirable for young animals that it should be specially equalised. It must be admitted that wet and cold are uncongenial to horses, and voluntary shelter for them should be available at all times. Not only should young horses be properly cared for in feeding, but they should have protection from rain, and they will know when to

seek it; and when they have a dry surface under foot in their yards and pastures, with space for voluntary exercise, the usual temperature of our winter months will not prove injurious to them. Although horses in a roomy paddock if well fenced do not suffer from a shower in summer, but long exposure to rain in confined spaces is injurious to them, and to guard against this shelter sheds in connection with their paddocks are desirable, and it is also essential that their sheds should have a north-west aspect to afford shade and protection from the sun and flies, as these always follow the sunlight.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—There is much work now, especially in connection with the use of the mowing, reaping, and binding machines, and in consequence it is best to use two horses at a time, but in relays, whereby each pair may work about five hours, but may be afterwards used during the day in any light tillage or carting corn or hay. Although it is frequently the case on some farms, it is bad policy to allow the horses to be idle during the early part of the harvest period, and it is too frequently the case that they are turned out to graze, and the carters and teamsmen put to assist in cutting the crops both of corn and second cutting of Clover for hay. In our opinion, however, nothing can justify such a proceeding, for even where hands are scarce reaping and binding machines can be hired in almost every part of the kingdom. We still advocate making corn ricks round, as they take less thatch and are less likely to be torn by the wind. At the same time we advise their being placed in the field where the crop is grown, unless the field happens to be near any buildings or premises where the ricks are usually placed for certain convenient purposes, such as having the straw and haulm which may be required as cattle fodder near to the yards where the cattle may be wintered. It is now time to consider the extent of autumn tillage necessary to be done; and in those cases where fallows are required to be made or partially made before Wheat-sowing commences, the home farmer should ascertain whether his animal power is sufficient for purposes of seeding for the fodder crops, such as Rye, Trifolium, and Vetches. We recently saw a sample of black winter Barley, which we previously thought had been banished the country; and we take this occasion to say that we first introduced this for early spring food for sheep or to cut up as green fodder in 1827. We found it produce fodder earlier than Rye with a much larger and more succulent stem and broader leaf, and as it originally came from Russia it will the better stand against any severe weather likely to happen in this country.

We will now refer to a plan of supplementing the horse power of the farm in the absence of steam, which we advocate for effecting with certainty the autumn fallowing during the harvest and subsequently. We recommend that oxen be used—strong animals three years old broken-in to work before purchase—either Herefords, Sussex, or Devons, which in our opinion are valuable as we have placed them, Herefords being more so than the others. For every hundred acres of arable land the farm may contain we would purchase on the approach of harvest three oxen, and continue them in work whenever the weather is favourable, using the scarifier and plough for rafting during the whole time of harvest and until the sowing of Wheat commences, up to which time the horses of the farm, having assisted the oxen in autumn tillage, the work will be in a forward state. The oxen will then assist the horses in helping forward the Wheat-seeding. After the Wheat-sowing has been completed the oxen and horses join in fallow-ploughing all the land intended for roots the following season. The work of the farm will then be sufficiently forward to dispense with the services of one horse for every hundred acres, or in other words to employ three horses instead of four. The result will be, that except under steam cultivation the land will be more forward than by any other means, and done at a less cost than by employing the usual number of horses during the year. The accounts will then stand as follows:—Three oxen for four months will cost the same in feeding as one horse for the twelve months, and when kept in this liberal manner they will each increase in value £1 during the four months, whereas the horse during the twelve months would have lost in value £3 3s. The advantages resulting from this mode of proceeding are obvious. The root land will be all tilled in the autumn and done at less cost; when the oxen have done work they will be found in improved condition, will be accustomed to the climate, and will be valuable to put into the boxes to fatten off at the end of twenty-one weeks from the time of completing the work assigned them. The odd horse or mule employed on the farm should be daily employed during the harvest in carting Clover and other green fodder for the horses and cattle of every kind requiring it, and in some cases the dairy cows, without interfering at all with any harvest operations, so that all the men and horses besides the odd one may be engaged in harvest work entirely until completed.

Hand Labour.—As soon as any men can be spared the Swedish Turnips, as well as the common Turnips, will then require another hoeing, and the late crops horse-hoeing and singling; some men will be also employed in attending the threshing machine if any Wheat or white Oats, &c., are required for immediate sale or for use on the farm.

Live Stock.—There is now abundance of food for the breeding ewes of any kind; and as the season for mating them is arrived they will now, whether of the short-woolled or long-woolled breeds, keep com-

pany with the ram which is in good time. We approve of crossing the long-woolled ewes with short-woolled rams, and *vice versa*, if the lambs resulting from the cross are to be sold as fat lambs; in fact, the Dorset horned ram is often used with advantage when mated with long-woolled ewes, as the number of twins is sure to be great, and the lambs for fattening are most approved by the butcher, the wool being short. Sheep are at present extremely dear, and will scarcely pay for the outlay of cake and corn-feeding in addition to that of hay and roots; in fact, we advise the home farmer to try the experiment by keeping a short stock for fattening, in order that some part of a crop of roots may be passed through an old cutter, greens and all, then spread and ploughed in. When the land is afterwards all sown with drege or Barley let him note the result next harvest, and we will engage that the corn will be stouter where the roots had been ploughed in than where they were fed off by sheep eating cake, hay, and roots. The dairy cows now should have Clover or any green fodder supplied to them in their racks morning and evening, as the pastures are becoming stale and short of grass, especially where they have been grazed all the summer. Breeding sows may now be fed with green fodder with advantage, as they will then eat a few Beans or Peas with avidity, which will maintain them in good condition.

BARLEY "BIGG."

A LADY submits to me some specimens of diseased Barley "Bigg," with the following information:—"It is often produced in branched stalks on one plant. The straw is like wire; the ears are erect when ripe. It will not grind up into meal, but into heavy chips. No animals will eat it. Donkeys and pigs refuse it when prepared for them." I cannot give a satisfactory reply, and therefore beg to ask your information through the medium of the *Journal of Horticulture*. Barley "Bigg" was given me as the name of the disease, but I rather take that to be the name of the variety.—L.

[The sample of winter Barley enclosed is not ripe, and the grain is therefore unusually thin; it is, however, never a full grain, like malting Barley. It is not a diseased sample. There are two varieties of winter Barley, as we call it, one being a white grain, and called "Bere;" the other a black grain, and called "Bigg." These kinds of grain are of Russian origin, and in certain districts are made into bread for peasant classes of the people. The white variety is imported into this country largely, and is used for meal purposes; but it makes light and coarse meal. In this country it is grown by itself, like Rye, for green fodder purposes. When required for meal it should stand to be dead ripe, and then the beard and husk will be broken off by threshing and hummelling, the grain will then make useful meal for feeding pigs, poultry, &c. If given to other animals it should be used after being broken and mixed with hay chaff; but for fattening sheep and cattle, or for milch cows, the meal should be mixed with cut roots. If further and full information should be required it will be found in the *Journal of Horticulture*, Oct. 16th, 1879. The straw is valuable for thatching, and is very durable.]

POULTRY AND PIGEONS

POULTRY NOTES.

WE have before us the schedule of the Poultry Show in connection with the Dairy Show, to be held on October 3rd to 6th. It is a great improvement that it is now held within a week, and does not, as formerly, extend over a Sunday. There seems little alteration in the classes from last year. Entry fees for the general public are the same as at the Crystal Palace, but there is a reduction for members of the "British Dairy Farmers' Association."

THE Committee of the Wolverhampton Show are to be congratulated upon having changed their date for the coming season from February to October. Their schedule is not yet in our hands, but if it be on its usual liberal scale it can hardly fail to bring a large entry of chickens at its altered date.

A THIRD show of poultry and Pigeons will be held at Newnham-on-Severn on September 21st. The former shows have had wonderful entries considering the modest dimensions of the schedule. As before, Mr. O. E. Cresswell will judge both poultry and Pigeons.

WE think it right to warn our readers against sending any of their superfluous feathered stock to unknown applicants in Ireland just at present. Several curious instances have come to our knowledge in which people, apparently ladies and gentlemen of

some position, have got pens of valuable birds from English exhibitors without prepayment. Payment does not follow, and the law, or it may be its present abeyance, seems unable to extract it.

WE should remind our Pigeon-fancying readers that the time has now fully come at which pairs of valuable Pigeons must be separated if they are required for autumn exhibitions. Where some less good stock is kept the last eggs of the better birds may be transferred to them, but where there are none such these had far better be sacrificed than the parents allowed to go on breeding through the moult.

IT must not be forgotten that sun is very detrimental to the colours of Pigeons in the moult. The better, however, the colour of the bird the less susceptible is it of harm from this source. Pigeons with an inclination to unsoundness of colour are quite spoilt by exposure.

THE multitude of poultry schedules which the post brings us just now makes it quite an embarrassing task to make our selection. For those who, ambitious of early success in the show pen, we may give a hint that it is far better to send their favourites where there are separate classes for both sexes, than in pairs.—C.

THE WARWICK FRAUDS.—I was much pleased to read "A. C.'s." communication to your pages of August 4th to the effect that the Warwick swindlers have been brought to justice. His suggestion that the vigilance and promptitude of Sergeant Hall are worthy of recognition is an excellent one. I for one shall be glad to subscribe 5s. towards this object—viz., a quarter of the entry fees which I was incautious enough to send, provided that I recover them.—O. ERNEST CRESSWELL.

OUR LETTER BOX.

White Leghorns as Layers (C. R.).—These birds have the reputation of being good layers, but, as in most other varieties, laying has been in many cases sacrificed to the production of fancy points. If you can get some of a family which has not been bred for exhibition they will probably answer your purpose. Their combs are single and their legs yellow and free from feathers. We have recently heard very favourable accounts of the laying qualities of a cross between Spanish and Black Hamburgs. Leghorn-Brahmas also lay well as a rule. Crosses very frequently bring out latent laying qualities which have been lost in the pure breeds through too fine breeding.

Cutting Beans (D. O. P.).—The best time for cutting is when the eye of the corn is turned black, the haulm being but little guide, as that will often be comparatively green, although the beans will be matured sufficiently. As, however, winter beans, particularly after a severe winter, grow very short, and are often podded close to the ground, we prefer to pull them by hand, and after being tied the sheaves stand several inches more above ground. The early cutting is of the utmost importance, because they will then take showery weather without the shedding of the corn by the shrinking and opening of the pods. In tying the sheaves we prefer tying with yarn, as the straw bonds do not answer all the purposes, as they are apt to break in stacking or in hauling to the machine at thrashing time. Formerly, instead of tying into sheaves at the time of cutting, it was the practice to set them up in loose state, tying the tops with a wisp of straw, and when dry then to tie into sheaves for stacking.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.				
1882.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.						
August.			Dry.	Wet.			Max.	Min.	In sun.	On grass.					
Sun. 13	Mon. 14	Tues. 15	Wed. 16	Thurs. 17	Friday 18	Satnr. 19	29.832	62.9	59.4	61.6	70.6	56.4	104.0	52.4	e.161

REMARKS.

13th.—Dull cloudy morning; fair afternoon, with occasional glimpses of sunshine.
 14th.—On the whole fine and bright, but occasional thunder and sprinkles of rain in the morning.
 15th.—A cloudy showery day, but with some bright sunshine.
 16th.—Rain in early morning, and a heavy shower at 1 P.M., but the day was on the whole fine and fairly bright.
 17th.—Wet early, dull cloudy day.
 18th.—Dull day, drizzle in afternoon; fine evening.
 19th.—Dull morning, slight shower about midday; dull afternoon and evening.
 Weather during the week dull and unsettled, but the amount of rain was inconsiderable. Barometer readings about one-third of an inch above the preceding week. Mean temperature rather above the average, and almost identical with that of the preceding week.—G. J. SYMONS.



31st	TH	Dundee Floral Fête. Three days.
1st	F	
2nd	S	
3rd	SUN	13TH SUNDAY AFTER TRINITY.
4th	M	
5th	TU	
6th	W	Bath Floral Fête. Two days.

THE ROSE SEASON OF 1882.

ACCORDING to my usual custom, now that the Rose season (so eagerly looked forward to and so variously estimated as to its probable character) has come to its close—for although a few good blooms may be gathered during September, yet nothing is likely to be gained then as an addition to our information, or what can in any way alter our estimate of the season—I now offer a few notes of a general character on matters of interest to all growers of the Rose.

With regard to the season itself, various conjectures were made from time to time which differed widely from one another, but the most general opinion with regard to it was that it would be a very early and a very short season; that the unusually mild winter had stimulated growth; that buds were formed in March, and we were commonly told that if we altered the date of our Rose shows and made them about a fortnight earlier we should be about right. In dissenting from this I stated that allowance was not made for what has proved an almost infallible visitor, a cold wave which comes over us in May or June. It came this year as usual, and the coldest June that we have had, I believe, for some years proved how useless it is to conjecture on this point. Buds remained *in statu quo* for weeks, and as a consequence there were very few districts where Roses were so very much earlier than usual. Show after show was held, and at all of them one heard the statement, "My Roses are not yet in flower." I have had many letters since they finished, in which the writers said, "I could cut better now than when our show was held." For the same reason, although Roses were as a general rule good, I do not think it can be said to have been exactly a good Rose season. The earlier buds were, too many of them, hard and green-eyed, owing to the cold weather to which I have alluded; and then as the exhibition season came on a great deal of wet weather marred the character of the blooms, and interfered with the hopes of the managers, although of those which I attended the greater portion were held on fine days. As with our fruits and cereals, we have not had for some years a thoroughly good Rose season; in many respects this has been better than its predecessors, but still not what we hope yet to see. It was, moreover, a very long season; trees did not all come into bloom together. Mr. Whitwell, who won the National Society's challenge trophy on July 4th, also took first prize for thirty-six at Newcastle on July 24th, defeating some of our largest nurserymen. I mention this as an example, because he has comparatively few trees, and because at that very time he said that he had fully a hundred plants that had not shown a

flower even then. Well, this is a great matter; we like to have good Roses, and we like to have them for a long time. A very hot season would doubtless prevent this, and therefore we may be contented, I think, with that through which we have passed.

That this year has witnessed a still further increase in the popularity of the Rose cannot be questioned. I have, perhaps, as good opportunities of knowing this as most people. As Secretary of the National Rose Society I am brought into contact with people in all parts of the country. I see the eagerness with which the exhibitions are looked forward to. I see also how at all of them there is an increase in the number of exhibitors. I see new Rose shows springing into existence like Minerva, full grown, and with an appearance of vitality which cannot be mistaken; and I see, moreover, the great increase both in the number of growers for sale, and also in the quantities grown. It is no uncommon thing to go into nurseries now where a quarter and sometimes half a million of stocks are prepared for budding. I know of nurserymen sending on all sides for buds, not having sufficient of their own for their own use. Now all these things are evidences of popularity. It shows that, multiply Roses as we may, the demand keeps pace with the supply—indeed, the more liberal the supply the greater seems to be the demand, and this not because of diminution of price, for in many cases, owing to the severity of the last two winters and the consequent losses, prices had to be raised.

As usual every year reputations are lost and won, both amongst exhibitors and flowers. With regard to exhibitors we have had some remarkable examples of success. The retirement of Mr. Jowitt permanently, and of Mr. R. G. N. Baker temporarily, gave hopes to Rose-growers which they might not otherwise have entertained. The possessors of such big battalions, combined with their skill and experience, made them such formidable exhibitors that in the large classes we naturally looked to see one or other of them occupying the chief places. It may seem invidious to single out any who have come forward as very successful exhibitors, but I think that Mr. Whitwell has proved himself a very successful grower, and has shown well in the large classes from only a thousand plants. Anyone who saw the careful manner in which his blooms were set up would be at once ready to acknowledge that he had taken a leading position as a grower and exhibitor. Then there was our worthy Vice-President, Mr. Baker of Reigate, whose modesty has kept him too much in the background. We who had known his flowers had always said that he was quite able to take a leading position if he would only believe it. He took heart of grace this year, and his success was a proof of the correctness of his friends' judgment, and I foresee that we may look forward to still greater triumphs. Then both Mr. Slaughter of Horsham and Mr. Grant of Ledbury have come forward as thoroughly good exhibitors, while amongst Tea Roses Mr. Davies of Aynhoe has shown what can be done by an amateur in this lovely class. Amongst the smaller exhibitors the most remarkable success has been achieved by Mr. G. Mount of Canterbury in a series of triumphs, which I look upon, considering the number of his trees, as unparalleled; but of this I hope to write more at some future time. Nor must I forget my worthy Co-Secretary Mr. Mawley, who has again from his small villa garden done wonders; while he has set an example to exhibitors by the

neatness with which he has set up his flowers, the fronds of Maidenhair laid on the moss giving them a most pleasing appearance. Other exhibitors will, of course, occur to many, such as Messrs. Hall, Hawtrey, Biron, &c.; but these have already made their mark. I am writing simply of those who have this year made their running, so as to entitle them to high commendation for their prowess.

And now with regard to Roses themselves. The most noticeable feature to my mind is the very great increase in the number of exhibits of Tea Roses, especially amongst amateurs. This I attribute in a great measure to the conviction which has forced itself on the minds of growers, that the supposed tenderness of this beautiful class was a myth; that they were within the compass of any amateur, at any rate south of the Trent, while their exquisite loveliness and the length of time they continue in bloom were passports to favour. Nor could I be sufficiently thankful that the National Rose Society had so determinately set its face against Hybrid Teas being included amongst them. The exquisite refinement of the stands would have been marred, for which the gain of colour would not have compensated—indeed, we are getting high colour amongst the pure Teas. I have seen at Mr. Cant's blooms of Madame Lambard which were of a very deep shade of rosy crimson, and we shall probably see more of these as time goes on. The greatest gain in this class has been Madame Angèle Jacquier, although Etoile de Lyon is considered to be the "topper." It has not, however, been exhibited anywhere, and therefore we have only hearsay evidence as to its merits, but that is so general that we cannot doubt its value. There is another new Rose which seems as if it would be likely to make its way, Rosicriste Jacobs, but then it may be like a great many others, afterwards found to be of little use; at present it appears to be like a vigorous Xavier Olibo. The dearth of new English-raised Roses is remarkable. Although prizes were offered at each of the National Rose Society's exhibitions for a new Rose it was not in any of the three shows awarded; but I am inclined to think that if "Her Majesty" had been exhibited in good condition at Bath it would have attained the honour. It is apparently a fine large Rose of the Capitaine Christy type, but as shown there it was decidedly confused. Of the Roses of three years ago A. K. Williams and Madame Gabriel Luizet have maintained their character, but it is unfortunate that the latter is as essentially a summer Rose as Coupe d'Hébé. I have seen a large number of plants, but I never saw a second bloom on any one of them. I think, perhaps, that the reason of this scarcity is greatly owing to the fact that raisers are more particular as to the flowers they send out. I know of two instances—one in which the £5 prize of the National Rose Society was awarded, and another in which a first-class certificate was obtained, but in both of which more mature consideration of their merits have induced the raisers not to send them out. This is as it should be, and will certainly add considerably to the value of any Rose these raisers may hereafter think fit to distribute.

It would hardly be expected that I should close this rapid survey of the Rose season without reference to the National Rose Society. Its career this year has been one of undoubted success. All its three exhibitions have been most encouraging, and happily on all three fine weather prevailed. Of that at South Kensington it may be safely said that no such exhibition of the Rose was ever held. We have fondly looked back on that at St. James's Hall as its first and best, but I have no hesitation in saying that if the Roses shown on that occasion had been placed in the arcades of South Kensington we should have said what a small exhibition it was; and as to attendance, I was informed by one of the officials there that it had been many a year since so large a number of people were present. Those at Bath and Darlington were also largely patronised. We must not forget, too, the publication of the Society's catalogue, which has been well spoken of in all quarters, and which cannot fail to exercise considerable influence on future exhibitions and on the demand for Roses. Nor is there any diminution in the interest which centres in the Rose; orders are accumulating on the growers. The success which has attended exhibitors leads to still further growth, and I think we may confidently expect that another season, if

we are spared to see it, will show a still further advance.—*D., Deal.*

WINTER CUCUMBERS.

WHEN writing upon most horticultural topics it is often with the motive, expressed or implied, of advocating the more extended culture of the subject in hand, but I should not think of persuading anyone to commence cultivating Cucumbers in the winter unless there were a demand for them and a suitable structure provided for their growth. In the first place, to grow winter Cucumbers successfully a light and well-heated house is absolutely necessary, as they require abundance of both top and bottom heat and air on all favourable occasions. Neither should the young plants be cropped early in the season, and for this reason any old plants now in full bearing in a house or heated pit ought to be encouraged to continue fruiting till late in November. This they will do if at the present time the growth is thinned out, the crop materially lightened, a top-dressing of rough turfy loam and manure from an old Mushroom bed, and occasional supplies of clear liquid manure be given. This, however, will be of no avail if the plants are infested with either thrips, aphids, or red spider, and these must be destroyed. The safest and most effective destroyer of the two former is fumigation on two successive evenings with tobacco paper, while the latter may be checked by syringing freely with clear water when the house is closed, say at about 2 P.M.; and if the hot-water pipes are painted with flowers of sulphur mixed with milk, and then heated to about 130°, this will also prove an effective destroyer of red spider.

In providing plants for winter no time should be lost in raising them; in fact it will be well if they are already established in pots. Growers prefer to strike cuttings for the winter supply, but if these prove more fruitful in the first instance, which I do not admit, they are seldom equal to the seedlings either for robustness or duration of cropping, and, besides, are apt to be attacked with some kind of insect pest. If the present supply of Cucumbers is being taken from frames or pits, these plants will be useless for late bearing; and a few should, therefore, be grown in pots or as supernumeraries to give a few fruits during part of October and November, which will enable the permanent plants to become strong and better able to bear the strain of continuous cropping than they otherwise would be.

We find Telegraph and All-the-Year-Round well adapted for winter culture, but this season Pettigrew's Cardiff Castle is substituted for the latter, and I have every confidence in its proving an excellent substitute. We sow seeds singly in 3-inch pots, using light loamy soil. The seedlings are kept perfectly isolated from all other kinds of plants in order to keep them clean. They also require to be grown near the glass, and before becoming much root-bound should be planted out if the mounds of soil are ready, or be shifted into 8-inch pots, so that no check to the growth be experienced. Those to be fruited in pots may be at once transferred to 12-inch pots or larger sizes, these being well drained; the soil to consist of two parts of roughly broken turfy loam, and one of old Mushroom bed refuse. This should be warmed, and when used be pressed down rather firmly below and around the plants. It is not advisable to wholly fill the pots in the first instance, preferring rather to allow room for an occasional top-dressing with more of the same compost. Later on a rim may be made with strips of galvanised tin about 5 inches wide, and this will admit of further top-dressings. Sometimes rough turf is packed on the surface of the pot, and into this or any other top-dressings the roots quickly ramble to the great benefit of the plants.

While the plants are being raised the house should be prepared for their reception. Whatever has previously occupied it, a thorough cleansing should be given, all old soil being removed, the wood and glass washed, and the brickwork well dressed with whitewash made from quicklime. This will ensure a clean start, and the more light the glass admits the better for the Cucumbers. The bottom heat should be from either hot-water pipes or heated water tanks, and capable of maintaining a temperature of from 70° to 80°, while there should be sufficient piping for top heat to sustain a temperature ranging from 60° to 65° by night to 65° to 70° by day without hard firing, the lowest readings being recommended when severe weather be experienced outside. If a chamber is formed for the bottom heat by either boards, gratings, or, better still, slates, the soil may be laid direct on these. It should consist principally or wholly of turf roughly broken, and this should be disposed long enough to get warmed prior to planting. A bushel to a heap is sufficient, and this, with slight top-dressings and the help of clear liquid manure, such as soot water, guano, or any artificial manure, will perfect the crops.

There are different methods of training the plants, to two of which I will allude as being presumably the best. A stake will have been placed to the young plants, but this in most instances will at planting time have to be replaced with a stronger one reaching up to the trellis, which should not be more than 12 inches from the glass. With some it is the custom to stop the plants when they reach the trellis and to train three or more growths, which follow up nearly the full length of the house, by which time the plants will have gained much strength and capable of perfecting some of the fruit produced on the laterals, which the main growths push out after being stopped; in this case the plants should be disposed at least 6 feet apart. I believe it is a better plan not to stop the plants till the leading growth has reached the end of the trellis near the apex of the roof, the lateral growth following to be trained about 18 inches apart, or according to the wires, after the manner of an horizontally-trained Pear tree, stopping when the plants meet, and fruiting the sub-laterals following this second stopping; in this case the plants may be disposed from 10 to 12 feet apart. In each case all the young growth should be kept thinned out, and those retained be stopped at the first joint beyond the fruit, or undue crowding will result. The object of the cultivator should be to secure strong thinly disposed growth calculated to bear the strain of fruiting at an inclement period of the year. The supernumeraries whether in pots or planted out may be disposed between the permanent plants and trained up the trellis till about 6 feet in length, when they may be stopped and fruited from the growths following. When exhausted, which they soon will be, they should be pulled out, so as to afford space for the permanent plants. We have grown profitable crops on plants in pots disposed at the sides and back of Pine stoves and other light well-heated structures.

The foliage of winter Cucumbers must be robust, and therefore the plan sometimes adopted of rapidly growing Cucumbers in a high temperature and a close and moist atmosphere will not answer, this inevitably resulting in thin unserviceable foliage at this season of the year. Moisture either in the atmosphere or at the roots is not required in great quantities. The plants ought not to be allowed to become very dry at the roots, but they do not require half the water that is given the spring and summer crops. The foliage should be syringed only when the house is closed after air has been given on a clear day, and then only lightly. It is advisable to admit a little air during the hottest part of every clear day. In fact, we find it a good plan to admit air by a "chink" towards noon every day unless the outer temperature be extremely low or the weather prove otherwise unfavourable. Overcropping must be avoided.

Early next season I hope to be able to offer a few hints upon growing spring and summer crops of Cucumbers, also upon Melon culture in connection with Cucumbers and separately.—W. IGGULDEN.

ODONTOGLOSSUMS.

(Continued from page 107.)

COMPARATIVELY few of even the most distinct and really useful forms of this genus have been yet mentioned in these notes, and before giving an outline of the cultivation some of the best may be briefly described, commencing with that well-known Orchid

Odontoglossum vexillarium.—Though of recent introduction compared with other popular species, this has advanced very fast in general favour, and it unquestionably deserves a place amongst the most useful Orchids in cultivation. A dozen or so plants in bloom have a most beautiful effect, and such displays as may be occasionally seen in the chief Orchid-growing nurseries grandly exemplify the value of the species for decorative purposes. Arranged with Ferns, such as *Adiantum cuneatum* or small Pterises, they have a charming effect, their large rosy or delicately tinted flowers being produced in numbers by healthy plants. The great size of the flowers and their soft distinct hue render them highly attractive either alone or associated with other Orchids, and it is not surprising that their culture is being so much extended. Several distinct varieties have also been obtained, one named *superbum* being remarkable for the great size of the blooms; another (*rubrum*) is equally notable for the deep colour of the flowers; and a third termed *rubellum*, though having rather smaller flowers than the others, is notable for the period at which the rosy blooms are produced—namely, during autumn, until late in the season.

Two other species closely allied to the preceding are *O. Phalæopsis* and *O. Roezlii*, each possessing considerable attractions when in good condition, though scarcely so showy as *O. vexillarium*, their flowers being smaller and less brightly coloured. However, when well treated they flower freely, and, like their

finer relative, are very useful for culture in pots. The leaves are narrow and grass-like, especially in the case of *O. Roezlii*, and quite distinct from *O. vexillarium* foliage, which is less firm, and when very healthy assumes a peculiar metallic hue. These three seem to form a distinct section in the genus, the striking characteristic being the great relative size of the lip as compared with the sepals and petals, which, moreover, do not spread so much as in other species, thus giving the blooms a close appearance like a good form of *O. Alexandræ*. It is generally found also that they require rather warmer quarters than the majority of the *Odontoglossums*, and if only one house is at the command of the cultivator they should be placed at the warmer end or in a cool position in the stove; but it must be borne in mind that, like most other forms of the genus, these require abundant ventilation and a moist atmosphere, and a cool base upon which to stand the pots.

O. maculatum.—On the score of showiness this, perhaps, has little claim to notice, yet the neat flowers have some attraction, and wherever it is desired to form a collection of the best species it should by no means be omitted. One recommendation it possesses is that the flowers are produced during the winter and early



Fig. 31.—*Odontoglossum maculatum*.

spring, and, as they last well, a few plants are always useful in imparting diversity to the display of Orchids. The flowers are of a yellowish or brownish colour, with a tinge of purple or crimson in the lip that is very pleasing. The regular form and sharply defined outline of the floral divisions are also notable characters, and are well shown in the woodcut (fig. 31), which represents a flower of an extremely fine variety from Mr. Dorman's collection at Sydenham.

O. citrosimum.—With many Orchid-growers this is deservedly a favourite, its pretty flowers possessing an agreeable Lemon-like odour, rendering it especially noteworthy in a genus which includes few fragrant species. In outline the flowers are nearly circular, the sepals and petals being broad and rounded; the lip is also broad and circular or elliptical, its purplish rosy colour contrasting well with the white sepals and petals. It is a Mexican species, and was imported thence by Mr. G. Barker of Birmingham over forty years ago, when cultivated Orchids were far less numerous than they are now, and it was proportionately valued. It is said that the plant was given by Mr. Barker to a gentleman near Macclesfield, by whose gardener it was first shown at Chiswick in 1842. This may be successfully grown in company with *O. vexillarium*, as it does not thrive under very cool treatment.

O. cirrhosum.—Of quite recent introduction is this charming Orchid; but though only six years' trial has been accorded it, it has acquired a position amongst the most generally appreciated forms, not only of the genus but of the whole family. For bouquets, vases, and similar floral decorations a few spikes of this are very welcome additions, but unfortunately they are not quite so lasting in beauty when cut as some others, such for instance as

the queenly *O. Alexandræ*. Yet amongst the numerous flowers seen in the bouquetists' shops of Covent Garden *O. cirrhosum* is evidently a favourite, the peculiar but graceful form of the blooms and the contrast of the rich chocolate spots on the white sepals, petals, and lip rendering so distinct. The floral divisions are in most of the common and earlier-introduced forms narrow and much waved, but varieties have now been obtained differing greatly in the breadth of the petals and the size of the flowers, some exceeding 6 inches in diameter from tip to tip of the opposite sepals. As a rule, however, those forms with flowers of moderate size are the most richly coloured and therefore the most attractive, such as the variety known as *Klabochorum*, which is one of the best in cultivation, and is greatly valued by Orchid growers. The woodcut (fig. 32, page 197) represents an ordinary form of this species not remarkable for its size, but for the rich colour of the spots.—L. C.

SUNDERLAND FLOWER SHOW.

THIS was held on the 24th inst. and two following days under most unfavourable circumstances. On the opening day an incessant down-pour of rain occurred, and it was not deemed advisable to open the Show that day for the public. The plants were staged, however, but judging did not commence till 3 P.M. The plants were very good.

For six stove and greenhouse specimens Mr. Gardner, Swalwell, was first with a large *Statice imbricata*, *Lapageria rosea*, *Phenocoma prolifera* Barnesi, very good; and two fine *Ericas*, *Lindleyana* and *Austiniana*. Mr. Adams, Swalwell, was second, his best plants being *Erica Marnockiana*, *Ixora coccinea*, and an *Allamanda*. Mr. Armstrong, Elswick, was third. There were five lots staged.

For six foliage plants Mr. Noble, gardener to Theo. Fry, Esq., Woodside, Darlington, was first. He had good examples of *Dasy-lirion serratifolium*, *Crotons Veitchii*, *variegatus*, and *Andreanus*. Mr. Armstrong was second with *Croton pictus*, *Lantana borbonica*, *Seaforthia elegans*, and *Cocos Weddelliana*—a very fresh even lot. Mr. Whiting, gardener to Mr. Walker, Shot Tower, was first for six table plants, including neat examples of *Pandanus Veitchii*, *Croton majesticus*, *Aralia elegantissima*, and *A. Veitchii*. For exotic Ferns Mr. Noble was well to the front with *Davallia Mooreana*, *Gleichenia Mendelli*, *G. Speluncæ*, and *Davallia bullata*. Mr. Appleby, gardener to H. Craven, Esq., The Briery, Sunderland, was second with creditable specimens.

For six stove and greenhouse plants in the gentlemen's gardeners' class Mr. Noble was first, his noteworthy plants being a good *Ixora javanica*, *Rondeletia speciosa* major, and *Erica Marnockiana*. Mr. Adams was second with *Erica Aitoniana* *superba*, *Vallota purpurea*, and *Phenocoma prolifera* Barnesi in good condition; Mr. Appleby being third. For six foliage plants in the same class Mr. Appleby was first with, amongst others, excellent specimens of *Croton Queen Victoria*, *Cycas revoluta*, and *Croton majesticus*. Mr. Graham, gardener to R. H. Jyne, Esq., Beechholm, took the second prize. For British Ferns Mr. Noble was first with a good collection. Three very fair groups of plants were shown, Messrs. Thompson, Noble, and Appleby winning the prizes respectively.

Cut Flowers.—Epergnes, bouquets, and cut flowers generally are usually well staged at Sunderland. This year was no exception; there was even an improvement in the epergnes, which were numerous and well arranged. For a hand bouquet Mrs. Cramont, Ashburnham, was first with a neat arrangement, consisting of *Ixoras*, white *Lapagerias*, *Forget-me-nots*, &c. Miss King, Ashburnham, second. There were seven entries. For bridal bouquet Mrs. Cramont was first, and Miss Bathensby second. In the class for epergnes Mr. Rutherford, Leases, Durham, was first. The top tier of his stand was very light and elegant. The second and third tier consisted of heavy coloured flowers, such as *Vallotas*, *Ixoras*, and *Anthuriums*, all neatly toned with Ferns, including *Adiantums* and *Davallia Mooreana*. There were nine competitors. For twelve and six Dahlias and six *Gladioluses* Mr. Harkness, Bedale, Yorkshire, was first with good collections of flowers.

Fruit was not shown extensively, the prizes not being very high; but some excellent Grapes and Peaches were staged by Messrs. Larke, Thompson, and Jenkins.

Messrs. William Fell & Co., Wentworth Nurseries, Hexham, showed an excellent stand of single Dahlias of such beautiful varieties as *Aigle d'Or*, *Paragon*, *White Queen*, *Scarlet Gem*, *Orange Scarlet*, and other leading sorts. The Secretaries, Mr. Thomas Humphrey and Mr. James R. Anderson, and the Treasurer, Mr. Blacklock, did all that was possible to achieve success, and it is to be hoped the inclement weather has not seriously affected the finances.

SEEDLING ZONALS.—There are many of your readers possibly who may have tried the experiment of raising Zonal Pelargoniums from seed. There is always a certain excitement in growing florists' flowers from seed, for the one among many reasons that you may succeed in having something very valuable. If you sowed early and transplanted the seedlings into borders as is usually done, and if the soil is rich and retentive of moisture, the seedlings are by this time possibly as thick as Dahlia stems, and very likely show not the least sign of flowering. If the soil is poor, sandy, and well drained you may have blooms the

first year; but if as indicated, to have blooms this year, I lift the seedlings this month, place them in small pots, and transfer to a close frame for a few days until the roots commence growth again. A sprinkling with the syringe will prevent the leaves falling. They can be fully exposed very soon, and a mass of flowers, perhaps all different, may reward your care all the winter.—W. J. M., *Clonmel*.

HARDY CYPRIPEDIUMS.

HARDY Orchids are much too rarely grown in our gardens. The reason for this is difficult to ascertain. To many of our cultivators, especially amateurs, the term "Orchids" conveys the idea of heavy expenditure in the first instance, and a perpetually heavy outlay afterwards; and this is so if one is enthusiastic in the cultivation of the tender species, and especially so if all the novelties which come into the field are secured. I do not wish to discourage in any way the cultivation of the tender Orchids, at the same time it is desirable not to neglect the hardy species, which now muster strongly; and although not so showy as many of the exotic kinds, yet they possess sufficient beauty to amply repay for the small amount of labour and outlay incurred in their cultivation.

Perhaps inattention to the real requirements of these plants is one of the chief causes of their absence from our gardens; for, like their favoured congeners, they have wants which must be studied in the matter of soil and situation, these being the chief considerations in attempting to grow them, about which, however, there is little difficulty. There is no doubt that, with reference to the hardy flower garden, we are but just beginning to appreciate the value of the proper plants for the work. Why should not hardy Ferns and Orchids be arranged together? This has been done in some places to a limited extent, but there is room for a greater extension in that direction. No two groups of plants could more easily be grown together, as the soils requisite are almost identical, quite so in many instances, while quite as much may be said as to the situation, and the Orchids would require as little attention as the Ferns if properly planted.

Cypripediums are especially suited for associating with Ferns both as regards their requirements in soil and position, and when in flower the effect is very striking, especially so in the case of *C. spectabile*. For the subjects of these remarks it is necessary to have a shady position with a good drainage, but moist. The soil required for most of the species is good peat, leaf soil, two-thirds of the former to one of the latter, and some good coarse silver sand; and when once they are planted they should remain undisturbed, when they will readily become established. Liberal supplies of water are beneficial in dry weather, and if the winter is very severe some of those enumerated below will require a slight protection over the crowns; or if excessively wet it will be necessary to protect them from superfluous moisture, which is very prejudicial when they are at rest. They may also be planted at the foot of the rockery, selecting as shady a position as possible, although the primary thing is in this respect to ensure them immunity from sunlight during the hottest part of the day, as the flowers are much longer preserved if this is considered.

The following method, which I adopted some years since in the cultivation of hardy Orchids, will give an idea of the small amount of trouble needed to grow them well. A large tree stump was selected and inverted so that the projecting roots were uppermost, the spaces between which were well filled with large cakes of peat, so that a good-sized basin was formed to receive the soil. I used as soil in this instance peat, leaf soil, yellow loam in equal parts, with a good addition of old mortar rubbish finely broken and sand. Among the Orchids planted in this stump garden were *Cypripedium spectabile*, *C. acaule*, *Calopogon pulchellus*, *Pogonia ophioglossoides*, *Orchis maseula*, *Arcthusa bulbosa*, *Orchis pyramidalis*, *Ophrys apifera*, and *Spiranthes cernua*, all of which flowered splendidly. In fact some of these species flowered finer than ever I had seen them before or since outside, especially *Calopogon* and *Arcthusa bulbosa*, and they thoroughly established themselves. In association with them I well remember the surface was covered with the charming little *Wahlenbergia hederacea* and *Erpetion reniforme*, while in the summer *Dionæa muscipula* flourished, as well as *Drosera rotundifolia* and *D. filiformis*. Among Ferns were *Allosorus crispus*, *Asplenium Ceterach*, *A. fontanum*, *Polypodium Dryopteris*, &c., so that all students of hardy plants will imagine the amount of interest which existed in so small an area; and one thing is certain—the plants were quite at home.

Already, as the species enumerated below will show, there are several *Cypripediums* introduced which may be regarded as hardy with us, but undoubtedly there are many others indigenous to both hemispheres which have never yet been found in our herbaria

even. I am much mistaken if there are not some grand species to come from the upper part of the Himalayas, as well as others from Eastern Asia and the western States of America. I have said nothing respecting their cultivation in pots, which is a very interesting method, and one which is to be encouraged, as they could then be easily protected during the winter by being placed in a cold frame.

C. acaulis.—A peculiar little species, with a pair of large oblong ovate hairy leaves, from the centre of which the flower stalks spring, which are usually about 4 inches high, carrying the comparatively large flowers, which are not less than 2 inches long, appearing during May and June; sepals ovate-oblong, brownish; petals much narrower and longer; labellum much inflated, varying in colour from almost pure white and veined with rose, to a beautiful rosy purple, when it is extremely showy. It is a native of the eastern States of North America, from whence it was introduced more than a century back. It enjoys a well-drained position with a liberal supply of sand.

C. arietinum.—A very scarce and curious species, with stems from 9 to 12 inches high, with ovate-oblong leaves, and a solitary flower about $1\frac{1}{2}$ inch long; sepals ovate, greenish-brown; petals narrower, of the same colour; labellum whitish, veined and tinged with red. It flowers with us in May, and it is advisable to afford it some protection from excessive moisture in winter, although it enjoys an abundance in the summer months. Native of the northern United States, from whence it was introduced early in the present century.

C. Calceolus.—This is one of our rare British plants found only in a few localities, but is plentiful in other parts of Europe and North America, with a slight variation owing to distribution. It was formerly known as *Calceolus Marianus*, or Slipper of Our Lady. The stem grows a foot or more high, with a few ovate downy leaves, clasping the stem. Flowers one or two on each stem, with brown sepals and petals, the latter narrow and wavy; lip very conspicuous, pouch-like, bright yellow, similar in form to a *Calceolaria*, and a striking contrast in colour to the sepals and petals. This flowers in June and July, and is most easily cultivated, thriving even in ordinary borders in a partially shaded position, although it is sometimes described as a difficult plant to establish.

C. candidum.—Stems 9 to 12 inches high, with bluntly ovate leaves, conspicuously ribbed and downy, with a solitary flower at the top; sepals and petals narrow, greenish white; labellum pouch-like, pure white. This is a very scarce species from the western States of America, flowering with us in June and July; and although not so showy as some of the others, it is very distinct and well worth growing, enjoying a very moist position.

C. guttatum.—In this we have a very distinct and desirable kind, coming from the damp Pine woods of Siberia. It grows from 9 to 12 inches high, with a very short stem proper. Leaves large, alternately placed, two in number, ovate-oblong, shortly acuminate, very hairy. Flowers solitary, on long hairy stalks; sepals broadly ovate; petals oblong, both greenish white spotted with crimson; labellum large, bag-like, white spotted and splashed with crimson, resembling blood stains. Place it in a well-drained spot so that dryness is ensured during the winter, and give plenty of water during the growing season. It appears to have been introduced about 1820, but was lost for a long time.

C. macranthum.—A very showy species, growing about a foot high, with a few ovate lanceolate leaves clasping the stem, with a solitary flower to each stem, 2 to 3 inches long, of a rich purplish crimson shade varying in degree; the labellum being deeper in colour than the other parts; sepals broadly lanceolate; petals longer, linear, and wavy; labellum with a large mouth, slipper-like, very conspicuous. This is also a Siberian plant, and a most beautiful and distinct kind it is, flowering in May and June, enjoying similar treatment as the last, when it readily thrives. It was first introduced in 1828, but has several times been lost, but no doubt it will be kept under cultivation now that more attention is given to such plants and good supplies are secured.

C. parviflorum.—A pretty species widely distributed in the United States, growing from 1 to 2 feet high, with ovate-oblong light green leaves. Flowers one to three on each stem, with brownish purple sepals and petals, and a small inflated bright yellow labellum. The flowers about 1 to $1\frac{1}{2}$ inch across and very fragrant, and very similar to those of *C. montanum*, except that the lip of the latter is whitish, while the habits of both plants are similar. This flowers in May, and is apt to suffer from excessive damp during the winter. Introduced as early as 1759.

C. pubescens.—A plant very similar in habit and the colour of the flowers to our native *C. Calceolus*. It is about the same height, but much more pubescent. The flowers, however, are larger and rather brighter in colour, but it is most likely only a varietal form

of that species. One of the easiest to cultivate, and extremely showy when in flower, forming a good kind for pot culture in the greenhouse, flowering outside in June. Introduced 1790.

C. spectabile.—This to my mind is the most magnificent of the hardy species, producing stems from $1\frac{1}{2}$ to 2 feet high, clothed with several ovate-oblong, downy, light-green leaves. Flowers 2 inches or more across, with broadly-ovate sepals, and oblong blunt petals, both pure white; labellum large, nearly round, being much inflated, white, heavily tinged with delicate rose; sometimes the shade of colour is much deeper, when the flowers are particularly striking, vieing with the most gaudy terrestrial Orchids. The value of this species has never been fully appreciated, although it has been known in the country for over a century. Not only is it a most valuable addition to the hardy flower garden, but it readily forces, so that it could be more largely employed for decorative uses in our greenhouses. Outside it flowers in July and August, which happily materially lengthens the blooming period of these charming flowers, so that we may enjoy one or other of the species from April to the end of August.

There are several other species which I have purposely omitted because of my partial knowledge respecting them, but they are, nevertheless, well worthy the attention of the cultivator, including *C. occidentale*, *californicum*, *helveticum*, *ventricosum*, &c., the two latter being very scarce; in fact, I am not certain if the last, which is a Siberian species, is to be found under cultivation now.—N.

NOTES FROM NORTH YORKSHIRE.

I HAVE been much interested with the articles that have appeared with regard to the Longleat Vines, and also those on Mushrooms. I intend trying the method of culture recommended on a small scale, as I think there is no better dish for breakfast than good Mushrooms.

I send you a tin box with some leaves of *Coleus* and also some Begonia flowers, and two flowers of Intermediate Stock. I send the *Coleus* and Begonias as curious instances of cross-hybridisation by bees or flies. The *Coleus* were all raised this spring from seed saved only from one seedling of my own, which is rather a favourite, similar to the piece with blue silk tied to it. The leaves I have just cut from the seedling plants are only small, as I wanted them to go into the little tin, but you will see they vary very much; the piece with red worsted round it has made a very beautiful plant. I selected it as one of the best, and the colouring is very bright and uniform, the leaves flat and smooth, not curled, and measuring 6 or 7 inches by 3 to 4 when fully developed.

The Begonias were all raised from a seed pod of Emperor which I had tried to impregnate with Stella. They have varied much, though the greatest number of them have been like Emperor, but have bloomed more freely and are rather broader in their petals. Here in North Yorkshire they seem to grow well out of doors and have even ripened seed. I intend to try them on a larger scale if I can next year.

I send the Stock as a curious instance of the length of time a hardy Stock will flower. The plants began to bloom in a Rose bed near the house before any of the Wallflowers, which were more than usually early this year—I think about the first or second week in April. All the plants which were single have long since ceased flowering, but the double ones are in full bloom still, and seem likely to continue for some time longer.

It has been a cold wet summer for gardens, but there seems to be no flower that stands every kind of weather better than the hardy Phloxes, of which I have a great quantity and variety, and everybody who sees them wants plants. I have many seedlings which have done well.—C. P. P.

[There are nine distinct varieties of *Coleus*, and every one of them attractive. It is curious to observe that, without any attempt at cross-fertilisation, not only that the varieties are so dissimilar, but that some of them closely resemble if they are not identical with some of the older named sorts, such as Berkleyi, Baronne de Rothschild, Princess Beatrice, and some others. The selected variety resembles Kentish Fire, but is brighter and better. The seed parent is smooth, velvety, and effective. The Begonias are good, very pale rose, deep rose, orange scarlet, and crimson. The Stocks appear to be varieties of the Lothian, and are most useful for border decoration. You and the bees have been very successful.]

CARTERS' DWARF MAMMOTH CAULIFLOWER.—For several years I have tried, like many of my gardening friends, to winter some Cauliflower plants in cold frames. They are subject to so many misfortunes even though they receive almost daily attention, that last year I tried a small quantity of Early London, Walcheren, and t

above near a south wall, and without any care or attention the Dwarf Mammoth escaped through the winter unscathed, the other two in a less degree. I saw large beds in another garden that were fit for use thus treated in the end of May. I am sowing the above this week similarly, and shall expect they will escape better without any attention than those grown in cold frames.—W. J. M., *Clonmel*.

TROWBRIDGE HORTICULTURAL SOCIETY.

THE Trowbridge Society has not failed to have an Exhibition for the past thirty-three years, and to all appearances it is as popular as ever, not only in the immediate district, but for many miles around. The Society, in common with many others, has met with bad fortune in the shape of disastrously wet days for the meetings, but so liberal are the leading inhabitants in their support that these reverses do not result in a dissolution, as too often happens in other cases. On this occasion the weather was far from being favourable, frequent heavy rains preventing numbers of would-be visitors from attending, and in spite of the apparently large attendance a deficit was considered inevitable. The schedule of prizes open to all competitors was a fairly liberal one, and included awards for street and other decorations, and great encouragement is also given to the working classes to cultivate flowers, fruits, and vegetables. Horticulturally speaking nothing was wanted to insure success, classes being provided for most popular kinds of fruits, flowers, and vegetables, and these on the whole were well filled. Thanks to the experience and energy of the popular Honorary Secretary, Mr. J. Huntley, and the Committee generally, there no hitch of any kind, everything being well arranged, and the tents open for inspection at the appointed time.

The great feature in the Show was the magnificent display of pyramidal Fuchsias. These were exceptionally fine, notably the premier six specimens staged by Mr. J. Lye, gardener to the Hon. Mrs. Hay, and the first-prize four specimens by Mr. H. Pocock, gardener to J. P. Haden, Esq. The former's plants averaged 9 feet in height, were perfect in every respect, and comprised Beauty of the West, Elegance, Emily Lye, Bountiful, Hon. Mrs. Hay, and Mrs. Bright, all raised and distributed by Mr. Lye. Mr. Pocock staged grand specimens of Arabella, Maggie, Charming, and Doe's Favourite. The same exhibitor occupied the second position with six, staging among others a wonderful specimen 10 feet in height of Doe's Favourite. Mr. J. Matthews, gardener to W. R. Brown, Esq., and Mr. G. Tucker, gardener to Major P. Clarke, were respectively winners of the third prizes, and both staged creditably. In the amateurs' class for six stove and greenhouse plants Mr. H. Pocock occupied the first position, his group consisting of healthy well-flowered specimens of Dipladenia Brearleyana, D. amabilis, Allamanda Hendersonii, Ixora Williamsii, Bougainvillea glabra, and Stephanotis floribunda. The name of the exhibitor of the second-prize group we could not obtain, but Mr. W. Sharp, gardener to E. May, Esq., was deservedly awarded the third prize. The best four specimens were staged by Mr. G. Tucker, and comprised a good Statice profusa and a well-flowered Allamanda Hendersonii. Mr. J. Matthews and Mr. Pocock took the remaining prizes in the order named; the former had a fine specimen of Erica Exquisite. In the class for nine plants, open to all, Mr. Mould, Pewsey, easily secured the premier award, his most noteworthy specimens being Erica cerinthoides coronata, E. Iveryana, Clerodendron Balfourianum, Ixora Reginae, and Dipladenia Brearleyana. Mr. J. Matthews was a creditable second, staging among others well-flowered examples of Erica retorta, E. Marnockiana, and Lapageria rosea. In Mr. J. Tucker's third-prize group a very vigorous specimen of Anthurium Williamsii and a beautifully flowered and richly coloured Bougainvillea glabra were noteworthy. Mr. W. Shay, gardener to C. N. May, Esq., staged the best nine fine-foliaged plants, the best of these being the examples of Croton pictus, C. Veitchii, C. Weismannii, and Latania borbonica. Good specimens of Gleichenia rupestris and Cycas revoluta were included in Mr. Mould's second-prize group.

Ferns and Lycopods were shown in excellent condition by several competitors, the groups being noteworthy for their evenness and healthy appearance, qualities not always apparent where larger specimens are staged. Fifteen varieties were required. Mr. H. Pocock worthily secured the premier position, his group comprising good examples of Davallia Mooreana, Dicksonia fibrosa, Adiantum farleyense, A. concinnum latum, Lygodium scandens, and Thamnopteris nidus. Mr. H. Tucker followed with many similar varieties, while Mr. G. Smith, gardener to J. Kemp, jun., Esq., and Mr. J. Coke, gardener to A. P. Stancombe, Esq., were deservedly awarded equal third prizes. Microlepia hirta cristata staged by the latter was particularly attractive, and deserves to be more generally grown. The class for a single specimen plant of any description was not particularly good, but the example of Croton majesticus staged by Mr. A. Shadwell, gardener to T. Chandler, Esq., fully deserved the premier award. Mr. Mould and Mr. J. Matthews exhibited Ericas in good condition; Messrs. J. Matthews, G. Garraway, Bath, and J. Lye staged good specimen Coleuses; Messrs. H. Pocock and W. Sharp Achimenes; Messrs. W. Sharp and A. Walters, gardener to T. Salter, Esq., Bath, Gloxinias; Messrs. Tucker and H. Pocock various Pelargoniums; Mr. Lye tricolor Pelargoniums; Messrs. J. Lye and W. J. Stokes, Hilpertown Marsh, Petunias, taking the prizes in the order named in each instance. There were also well-filled classes for

Balsams, Cockscombs, Caladiums, and Verbenas. Amateurs not employing gardeners also exhibited well in the classes set apart for them.

The competition in the cut-flower classes was particularly good. Dahlias, both single and double, made a grand display, and the Roses, considering the season, were surprisingly fine. Messrs. Keynes & Co., Salisbury, had the best stand of twenty-four distinct Dahlias, Mr. T. Hobbs being a good second, both staging grand examples of the leading sorts. The prizewinners in the class for twelve varieties were Mr. H. Bush, Swanswick, and Mr. W. Sloper. Messrs. Keynes & Co. also gained other awards for Dahlias, and they also staged, not for competition, most brilliantly coloured single Dahlias. Messrs. Cooling & Son, Bath, and A. F. Walters, Bath, also brought attractive stands of single Dahlias, the best of these being alba, Paragon, coccinea, and lutea. Messrs. Cross & Steer, Salisbury, were awarded the premier prize for Roses in twenty-four varieties, among these being good examples of Marquise de Castellane, Elie Morel, Senateur Vaisse, Alfred Colomb, Countess of Oxford, and Dupuy Jamain. Mr. G. Humphries, Chippendale, and G. Cooling & Son, Bath, were awarded the remaining prizes. The latter exhibitor also brought some good stands of Roses not for competition; included in these were excellent blooms of Mabel Morrison, La Rosière, Marie Baumann, Auguste Rigotard, Marie Rady, and Mons. Fournier. Mr. W. Smith, Bristol, easily secured the first prize for twelve triplets; these comprising fine richly coloured blooms of A. Colomb, La France, Niphetos, Marie Baumann, Louis Doré, Général Jacqueminot, Madame Victor Verdier, E. Y. Teas, Louis Van Houtte, and Bartelmy Joubert. In a corresponding class for amateurs Mr. J. Davis, Wilton, was awarded the first prize; his best triplets were of A. Colomb, Reynolds Hole, Lord Macaulay, Star of Waltham, and Madame Victor Verdier. Messrs. A. R. Tanner and H. Catley, both of Bath, were respectively the second and third prizewinners. Mr. D. Shellar, Bristol, staged the best twelve single blooms, Messrs. J. Davis and G. Tanner following closely in the order named. Mr. W. Burridge staged the best twenty-four German Asters, his stand comprising all the beautiful quilled varieties he has raised. Mr. G. Garraway, Bath, had the best stands of French Asters, Mr. W. Sloper, Highworth, following closely. Gladioli were grandly shown by Mr. Wheeler, Warminster; and two stands of cut blooms of the White Clove Carnation, The Governor, staged by the Messrs. Cross & Steer, Salisbury, received much admiration. Mr. F. J. Frances, Weston, was first, and Mr. C. Bailey, gardener to — Phayre, Esq., second for twenty-four bunches of cut flowers, both staging choice kinds.

Hand bouquets were not extensively or particularly well shown, neither do the Judges encourage good taste, as they awarded the first prize to an enormous and closely packed example exhibited by Messrs. Cross & Steer; the second to Mr. W. C. Drummond, Bath, for a pyramid also closely packed; while the third prize went to Mr. M. Hookings, Bristol, for decidedly the lightest and most tasteful arrangement. The memorial wreaths were noteworthy, there being several tasteful examples shown. Mr. H. James had the best, this being composed largely of Tuberoses, Eucharises, white Lapagerias, and Maidenhair Fern. Mr. Hookings was a good second. Similar positions were occupied by these exhibitors with an ornamental device of flowers, the third prize going to Mr. J. Bland, Bristol. Good taste was shown in each instance. Mr. Hookings had the best centrepiece composed of fruit and flowers, being closely followed by Mr. W. H. James, gardener to A. Laverton, Esq., the third prize going to Mr. J. Cook.

To Mr. T. King, gardener to R. V. Leach, Esq., Devizes, was awarded the first prize for ten dishes of fruit; Mr. A. Millar, gardener to W. H. Long, Esq., M.P., Rood Ashton, taking second; and Mr. F. Crossman, gardener to F. O. Bennett, Esq., Bruton, the third prize. There was no limit to kinds or number of fruits constituting a dish, but Pine Apples were excluded. The consequence was the first prize went to a collection consisting of Black Alicante, Black Hamburg, and Buckland Sweetwater Grapes, and immense piles of Moorpark Apricots; Jefferson Plums; Lord Palmerston, Barrington, and Exquisite Peaches; Pine Apple and Prince of Wales Nectarines; whereas Mr. Miller staged better Alicante and Hamburg, but inferior Muscat of Alexandria Grapes, excellent examples of Hero of Bath and Best of All Melons, good Barrington and Bellegarde Peaches, Moorpark Apricots, Kirke's Plum, and Balgowan Nectarines. This was certainly the best representative collection. Mr. Miller was the only exhibitor of Pine Apples, and was awarded the first prize for a fair Queen. Mr. F. Crossman with beautifully coloured Buckland Sweetwater was first in the class for any white Grape not Muscats, Mr. Miller following with good bunches, but not well coloured, of Foster's Seedling. In the corresponding class for black Grapes these exhibitors gained similar positions, both staging Black Alicante in good condition. In the class for Black Muscats small well-coloured bunches of Muscat Hamburg secured the first prize for Mr. King; Mr. J. Loosemore, gardener to W. Cooper, Esq., following with good examples of Trentham Black; Mr. Clack taking the third prize for fair examples of Muscat Hamburg. White Muscats were not well shown. Mr. J. Loosemore was awarded the first prize for fairly coloured bunches. Mr. G. Hart, gardener to J. Fussell, Esq., and Mr. S. Paviour, gardener to W. Smith, Esq., were respectively the winners of first prizes for green and scarlet-fleshed Melons, there being fair competition in each instance. Apricots for the season were very good; Mr. Hart secured the first prize, the

second prize going to Mr. G. Tucker. Green Gages were not largely shown. Mr. Miller had the best, while with dessert Plums Mr. King occupied first position with clear examples of Golden Gage. Mr. Crossman had the best Cherries. Several good dishes of Peaches were shown: the best highly coloured Royal George were staged by Mr. G. Pymm, gardener to J. Goldsmith, Esq.; Mr. F. Rice, gardener to Mrs. Home, Weston, following. Mr. Pymm was also first with Nectarines, staging good Lord Napier; J. H. Lovibond, Esq., following with Elruge in good condition. In this and the preceding class Mr. H. Clack was worthily awarded the third prize. Dessert Apples in two varieties were well shown. Mr. E. Hall, Bath, was first with Peach Apple and Devonshire Quarrenden, Mr. A. T. Hall following with the same varieties. Kitchen Apples were not largely shown, but several exhibitors had Lord Suffield large and good. Mr. Pymm took the first prize, while Mr. W. E. Hall was the most successful exhibitor of Pears, and Mr. H. Sheppard of Filberts. Vegetables were extensively and well shown by gardeners and cottagers, prizes being offered for single dishes of all kinds in season, as well as for collections. Mr. H. Scott, Bath, and Mr. W. G. Tyler, Bath, were respectively winners of the first and second prizes for collections, and others were highly commended.

On the whole the Trowbridge Society must be termed a model institution, and fully deserves the support it receives, and we trust will long remain as popular as it is at present.

STANDEN'S MANURE.

In your Journal of 24th inst., under the head of "The Best Manure," the comments made by your correspondent are scarcely, we think, fair to us. We have purchased the proprietary right of "Standen's Manure" at a very high figure, and are not only prepared to produce the most practical and impartial evidence as to the present fertilising properties of Standen's manure in comparison with others, but also to prove that the ingredients and manipulation of it are precisely the same as when introduced some twenty years ago.—CORRY, SOPER, FOWLER & Co., 18, Finsbury Street, London, E.C.

ROSES ON THEIR OWN ROOTS.

THERE is no season of the year when remarks on this subject are more seasonable than at the present time. For some years past Roses on their own roots have been ignored by the majority of Rose-growers, and worked plants advocated as capable of producing better and finer blooms. It is not my intention to condemn the use of stocks generally, for it is evident to all who study the Rose that certain strong-growing stocks are advantageous to those of poor weak growth. But stocks have been used for all, irrespective of variety or constitution, and all that has been urged again and again in their favour is not sufficiently conclusive to my mind why Roses should not be largely cultivated on their own roots. Those who use and recommend the use of the Manetti as a stock advise the union of the stock and scion to be buried that roots may form at the union, and the Rose finally to be upon its own roots independent of the stock. If the Manetti is left above the ground—as in the case of the Briar—and the variety worked upon it is of vigorous growth, how long will the Rose continue to thrive? To my mind the Manetti is useless as a stock for strong growers when such Roses as Belle Lyonnaise, Lamarque, Rêve d'Or, or Maréchal Niel are capable of exhausting it after one season's growth, and the stock is found dead. This is often the reason these strong growers do not flourish after the first season of their existence. One thing is gratifying to those who advocate Roses on their own roots, and that is—those who use the Manetti as a stock are evidently in favour of own-root Roses, or we should not be advised to plant those worked upon that stock deeply. This stock, I must admit, is easy to raise and work upon. But after all it takes a much longer time to raise plants by working than striking them by means of cuttings, and better plants can be produced in less time than by first striking the stock and budding them. This may be disputed, but it is, nevertheless, a fact, for plants can be seen here carrying at the present time as many as twenty flowers and buds, and it is only twelve months since the cuttings were inserted. This is the case more especially with La France, one of the easiest of all Roses to raise from cuttings, and undoubtedly the most floriferous Rose in cultivation.

Rose cuttings may be rooted with much greater ease and certainty than many people suppose, and neither amateurs nor cottagers need fail if only suitable wood is selected and the operation carried out at the proper time. There can be no doubt where it can be conveniently carried out the system detailed by Mr. W. Taylor in these pages is an excellent one. The method I have always adopted with marked success at this season of the year is to have ordinary handlights near a north wall, in which is placed half an inch depth of red sand at the bottom, and then about an inch depth of light soil over it. Old potting soil

is generally used and pressed moderately firm. The wood for the cuttings is then selected, and that of moderate strength being preferred, as I have always found a greater per-centage root than when strong pithy wood is employed. The cuttings are made without a heel, as they root equally well when cut just below a joint, in fact in less time than when a portion of the old or harder wood is attached to them. As a rule the cuttings only possess two buds unless the wood is very short-jointed, and are inserted in the handlights with the leaves attached. They are placed thickly together, the soil well firmed about them, and then thoroughly soaked with water. The top portion of the light is placed on, and the cuttings need no further attention until they are rooted, which they will be in about a month. They will not require watering after the first application if the lights are kept close.

Another system I have practised with success, and will detail for the good of amateurs and cottagers that do not possess handlights and are anxious to strike Roses. The same preparation of sand and soil should be made, only of a greater depth, and placed in a similar position. The cuttings should be about 6 inches long, and inserted fully half their length in the soil, or, better still, if only one eye is left out of the ground. After insertion and a good watering the cuttings should be dewed overhead on the afternoons of fine days and watered as they require it. If the weather is hot



Fig. 32.—*Odontoglossum cirrhosum*. (See page 193.)

and dry three or four good waterings will be required before they are rooted. It will be found that a great per-centage of the cuttings will be well rooted in six weeks if treated as described. The principal secret in striking Roses is to insert the cuttings before the wood becomes too hard, for the firmer the wood the longer the cuttings are in rooting and the greater the number of deaths. Hundreds of Rose cuttings die through late insertion, and many people in consequence conclude they are difficult to propagate from cuttings.

Under whichever system the cuttings are rooted the treatment afterwards should be similar where the protection of glass can be afforded them. I have found it an advantage to place the young plants at once into a moderately warm temperature after they are transferred to 4-inch pots, which induces them to form roots rapidly and abundantly and start into vigorous growth. It is necessary to shade from strong sun for a time after potting, and dew them overhead with the syringe two or three times daily. Roses do well after they are once rooted if only a cold frame or handlights can be given them for a time, but they make much greater progress in a temperature ranging from 60° to 65° at night until thoroughly established. The object in view when pushing them forward in the temperature named is to have them as large as possible before winter and in 6-inch pots. By the time they are placed in the last size they are in a cool house or frame, where they remain until the approach of very sharp weather, when they are assigned any cool position where frost can be excluded. This keeps them slowly growing during the winter, although but little will be perceptible, but the pots will become well filled with roots ready for early spring. Early in the season they are again placed in cold frames, which are ventilated abundantly on all favourable

occasions until thoroughly hardy, and then stood outside in a sheltered position, and finally planted out in beds or borders prepared for them.

Those having no glass can pot the cuttings when rooted if they choose, but it is preferable to leave them undisturbed in the position in which they have rooted until spring. To carry out this system properly the cuttings should be inserted in rows 6 inches apart, so that fine coal ashes can be placed between the rows and well round the plants, only leaving the uppermost eye exposed. Nothing will protect them better from sharp frost than ashes. These should not be placed between the rows until sharp frosts are really expected, when other protecting material, such as mats and dry straw, should also be in readiness. If a little protection only is given it will be found that the majority will survive. If the growth made in autumn from the top bud is destroyed it will prove but little detriment to the young plants if inserted in the ground a moderate length. The latter is important when they are intended to remain outside during the winter. In spring they can either be potted or planted out. If potted good fibry loam should be used, with a seventh of decayed manure and leaf soil, to give them a start, and sufficient sand to make the whole porous.

Last year about this time I made some cuttings from a shoot that had been broken off, and dibbled them into the Rose bed outside. They were lifted several times to see if they had rooted. The lifting killed all but one, which was well rooted in autumn, and stood well through the winter without any protection. This is now a vigorous plant, flowering freely with three or four strong shoots from the base. This is merely mentioned to show those who have no glass that a stock of Roses on their own roots can readily be obtained without proving an expensive operation, as only a limited amount of intelligence and care is needed to propagate Roses from cuttings.—W. BARDNEY.

BARNARD CASTLE SHOW.

BARNARD CASTLE is situated in the southern division of Durham, close on the confines of Yorkshire, and adjoining the romantic vale of the Tees, with its charming waterfall. Everywhere the scenery is enchanting, rich in woodland, and a fine pastoral country. Rokeby Park, immortalised by Sir Walter Scott, Raby Castle, Stratlam Castle, and other places are all contiguous. The town of Barnard Castle is very old, possessing an exceedingly fine specimen of an old Norman castle. It is in the castle grounds where the Committee held their Flower Show. This is close to the "King's Head," where Charles Dickens stayed during his visit, and where he portrayed so forcibly the adjoining educational establishments.

The Show was not very large, but in all classes the exhibits were of superior merit. For four plants the Society offer £5. Mr. Johnson, Darlington, was first with a fine *Erica Austiniana* and *Shannoni*, *Clerodendron Balfourianum*, and *Lapageria rosea*. Mr. Westcott, Raby Castle, was second; and Mr. W. Bowlzer, Rokeby Park, third; he had in his stand a fine plant of the old *Clerodendron fallax* over 3 feet high. For four exotic Ferns Mr. Johnson was again first with fine plants of *Davallia Mooreana*, *Gleichenias microphylla* and *Mendeli*, and *Adiantum farleyense*. Mr. Westcott was second, his best plant being *Davallia Mooreana* over 7 feet across. Mr. Westcott was first for four foliage plants; he had a grand *Alocasia Lowii* over 4 feet high, well developed. Mr. Westcott showed some excellent Cockscombs of his noted strain. Mr. Bowlzer showed fine Zonal Pelargoniums, Lizzie Brooks, The Bride, and Mrs. Wright.

Fruit was a great feature of the Show. For six varieties, Pines excluded, Mr. Westcott secured the chief prize with Muscat of Alexandria and Black Hamburg Grapes, fine in every respect, the bunches varying from 3 to 4 lbs., the berries large and finely coloured. Royal George Peaches and Pitmaston Orange Nectarines were also very good. Mr. Jowsey, gardener to Gilpin Brown, Esq., Ledbury Park, showed very fine Black Hamburg and large Buckland Sweet-water Grapes, Violet Hâtive Nectarine, Colston Basset Melon, and Royal George Peach. This collection was an excellent second. Mr. Bowlzer was third for two bunches of Black Hamburg; Mr. Westcott was first with excellent bunches. For two bunches of Muscats Mr. Jowsey was first followed by Mr. Westcott. Peaches, Nectarines, and Melons were also well shown.

Vegetables in both the open and amateur classes were very fine. The Society would do well to enforce the rule relative to the naming of exhibits, and also to have on the exhibition cards the names of the owners of the produce as well as gardeners who exhibit it. Mr. J. J. Bailey is Secretary, and with an active and efficient Committee endeavours assiduously to make the Show a success.

POTATOES.

I SHOULD be much obliged to any of your correspondents who would kindly supply me, through the Editor, with a few seed apples of the *Magnum Bonum* Potato. I have looked over acres here in several directions, and cannot obtain what I want. They flower, but produce no seed. I have only one seedling of the

Magnum Bonum, but that is so very satisfactory, possessing all the disease-resisting characteristics of the parent, that I wish to proceed further.

I find a wonderful difference in seedling Potatoes with regard to disease-resisting power. I have been carrying on seven or eight seedlings now for several years, but find the majority are so liable to disease that I have decided on discarding all but one. This one has never had the disease in the least as far as the tubers are concerned from first to last. It is a round Potato about the size of a cricket ball, and not very unlike one, but the skin is about the colour of Schoolmaster. I carried these seedlings on because some of them were wonderful croppers; but I shall not, I think, do so in future, and discard all which have the disease badly in the second year. It is not necessary to occupy much land in the trial of seedlings. About a dozen tubers are quite enough to carry on until you decide that the variety is worthy of a more extended trial.

The seeds are sown on a mild hotbed in spring, and planted out at the end of May or beginning of June. They should be put out at least 2 feet apart, and well earthed up. The produce varies very much according to circumstances and the season. You may have twenty tubers, some of them large enough for cooking the first season, or disease may come and you may only have seven or eight tubers about as large as peas, and then it takes several years to work them up to a respectable size, but it will save trouble if you discard in the second year as before mentioned. The seedlings require to be well earthed up, as they have more root-development than those raised from tubers. Here is a wide field open for private enterprise. The Committee appointed by the House of Commons recommended the establishment of stations at different parts of the country for the purpose of raising new seedlings and improving the cultivation of the Potato, but the Government have been too much occupied to be able to give any attention to the matter. I wish they would offer some prizes worth having, and we should then see what can be done in the way of new varieties.—AMATEUR, Cirencester.



WE are informed on good authority that the INTERNATIONAL POTATO EXHIBITION to be held at the Crystal Palace on September 20th and 21st promises to equal in interest the exhibitions of former years and to develop some new features. The Committee, aided by the generous co-operation of the Royal Horticultural Society, have been enabled to submit all seedling Potatoes sent in for competition to a very complete series of tests, and they will be finally judged on their cropping, disease-resisting, cooking, and exhibition qualities. The certificates of the International Committee are so much coveted by raisers of new varieties that they have felt bound to exercise the utmost caution, and to spare no pains in their endeavour to do perfect justice.

— WE have received from Messrs. James Dickson & Sons of Chester blooms of their new white CLOVE CARNATION DUCHESS OF WESTMINSTER. Spotless purity, smoothness and substance of petal, with excellence of form are combined in the flowers before us. We have never seen any white Carnations more charmingly beautiful, and the flowers are also highly perfumed. On inquiry we find that the plant is very hardy and continuously floriferous, early layers taken off and potted flowering until Christmas like a tree Carnation. We regard this variety as a valuable acquisition, and Messrs. Dicksons, we apprehend, will require a large stock of plants to meet the demand that is likely to arise when the merits of the Duchess become widely known. Plants of this variety will, we believe, be distributed during the present autumn.

— CRYSTAL PALACE.—Mr. G. Reay-Mackey, late Assistant-Paymaster Royal Navy and Secretary to Admiral Rice and Admiral Luard at Malta, has been appointed manager of the Crystal Palace; and Mr. G. G. Cleather, manager of the Sear-

borough Aquarium and late secretary of the Whitby and Scarborough Railway, has been appointed assistant manager.

— WE learn that Mr. B. Simonite's beautiful self AURICULA MRS. DOUGLAS is about being distributed by the raiser. This variety was certificated at the Southern Show of the National Auricula Society in 1880, and by its robust habit, fine truss, and rich violet purple colour it was much admired. It is not only a fine exhibition variety, but will be highly effective for decorating the front stage of a greenhouse or the margin of a conservatory. Mr. Simonite is sending out at the same time his beautiful light red-edged Picotee Mrs. Gorton.

— RELATIVE to the list of PLANTS CERTIFICATED AT CHISWICK, published on page 117, we are informed that the Heliotropes, Pentstemon, and Tropæolum were not certificated, but recommended by the Floral Committee as excellent varieties worthy of culture.

— A SHEFFIELD correspondent informs us that he saw at RIVERDALE the other day, the residence of C. H. Firth, Esq., one of the heaviest crops of Nectarines that has come under his notice. The fruits average six to the square foot, the variety being Victoria. The Grapes, as usual, are also excellent and finishing well.

— THE new Pea, DUKE OF ALBANY, raised by Mr. Abbot, the gardener at Riverdale, is described by the same correspondent as an immense cropper, with large well-filled pods of fine appearance, while the peas are of superior quality.

— THE NATIONAL DAHLIA SHOW, to be held on Friday and Saturday, September 8th and 9th, at the Crystal Palace, is expected to be one of unusual excellence, representing fully the several classes of Dahlias which are now cultivated both for show and decorative purposes. The time for making entries closes on Monday next, of which fact intending exhibitors should make a note. The entries should be sent to Mr. T. Moore, Botanic Garden, Chelsea.

— MR. LUCKHURST states that he first saw CAMPANULA HEDERACEA growing on the banks of a stream in a bog, and tried to establish Anagallis tenella and Parnassia palustris alongside it, but failed with both of them. Since then the Campanula has made its appearance in various parts of the lawn, and there are now several square yards of it in full bloom, some patches being specially left unmown. The shallow silicious soil is very retentive of moisture, which probably accounts for this lovely bog plant thriving so well in it.

— MR. HARKER, Epsom, sends us the following note on WINTERING ECHEVERIAS:—"All gardeners know the value of Echeverias for carpet bedding, and some find a difficulty in keeping them through the winter. The plan we adopted three years since has answered well through two sharp winters and one mild one. We use a three-light garden frame, and make up ridges of ashes from the furnace, such as you would make in ridging a piece of ground for the winter, then cut the Echeverias off level with the ground, and lay them on the ashes without soil or roots. Since adopting that plan we have scarcely lost a plant. We place a mat on the frame in frosty weather. About the end of March we take off the frame when we want it for Cucumbers, and water the ridges in April and May when the weather is very dry."

— THE same correspondent observes relative to DAHLIA HEDGES:—"I do not know if it is generally known what a fine hedge they make in the garden. Last year we sowed a packet of single Dahlia seed from Mr. Cannell, and had four dozen plants from it, some of which were very good varieties. We selected the best of them, and stored the roots in the usual way. In April we

divided the largest roots and planted them 15 inches apart in a row in the kitchen garden, as a row of Potatoes would be planted. They grew strongly, and when they were about a foot high we placed bushy Pea sticks to them, as if staking Peas, but slanting them outwards wider than for Peas. Now we can gather flowers by the hundred, and if the plants were protected from early frost they would keep flowering for a long time."

— WE are informed that the attendance at the SHREWSBURY SHOW, which was fully reported last week, numbered forty thousand people in the two days.

— THE issue of the "ICONOGRAPHY OF INDIAN AZALEAS" for August contains coloured plates of the following varieties:—Sigismund Rucker, a well-known form, which it is stated originated at Van Houtte's establishment as a sporting branch on Rachel Von Varinhagen, and which has been fixed by grafting; Concordia, a double deep red variety, raised from seed by M. Joseph Vervaene, and sent out in 1879; and Cordon Bleu, one of M. E. Vander Cruyssen's seedlings, with large flowers of good form, and possessing somewhat of a violet-blue or purplish tint.

— THE ninth annual Exhibition of the BRACEBRIDGE AND BOULTHAM HORTICULTURAL SOCIETY took place on Wednesday last in Bracebridge Park, kindly lent by the President, F. J. Clarke, Esq. Boisterous weather prevailed, but the rain held off and the attendance was satisfactory. The horticultural exhibits were staged in three marquees, and the display was equal if not superior to former years. The principal prize for plants arranged for effect was awarded to N. Clayton, Esq., for a magnificent collection, the arrangement of which reflected much credit upon the gardener, Mr. A. Wipf. Mr. H. Greenham was second, and Major Ellison third. The latter was also a successful exhibitor of flowers. Fruit was a splendid show, the majority of the prizes falling to Mr. Clayton, the Mayor of Lincoln (W. J. Warrener, Esq.), Mr. A. Shuttleworth, and the Marquis of Ripon. Messrs. Pennell & Son contributed a superior collection of Roses, Gladioli, &c. Vegetables were especially fine; the Red Cabbages, Onions, and, in fact, all kinds grown by Mr. Bentley on the Corporation's Sewage Farm being of marvellous size and excellent quality.

— IN the last quarterly number of "La Belgique Horticole" we notice an illustrated verbatim translation of the lectures on "HORTICULTURAL BUILDINGS," delivered by Mr. F. A. Fawkes, F.R.H.S., during the last winter session to the students of the Crystal Palace School of Gardening.

— AGRICULTURAL depression would appear to have a wide field, for we find there are DISTRESSED TOBACCO PLANTERS. Owing, as it is said, to the low prices of tobacco in Europe the tobacco cultivation, once so flourishing in the island of Java, is rapidly declining, the planters being in consequence much distressed. The *Java Bode*, a Dutch local journal, states that lately in the eastern portion of that island three estates were sold collectively for the trifling sum of 5700 guilders, though only three years ago a brick tobacco shed on one of them cost 400,000 guilders.

— WE regret to announce the death of JOHN DILLWYN-LLEWELYN, ESQ., of Penllergare, near Swansea, at the age of seventy-two. Mr. Llewelyn died at Atherton Grange, Wimbledon, where he had taken up his residence during the last two years, having relinquished his residence at Penllergare in favour of his son, Mr. J. Talbot Dillwyn-Llewelyn, who is well known as an ardent florist and horticulturist, and as a member of Council of the Royal Horticultural Society. Mr. Llewelyn, sen., was a Fellow of the Royal Society, and one of the oldest surviving Fellows of the Royal Horticultural Society. He took an active

part in the prosecution of horticulture, and was ever ready to promote its best interests.

— MESSRS. CHRISTY & CO., 155, Fenchurch Street, London, E.C., have issued No. 6 of their work entitled "NEW COMMERCIAL PLANTS AND DRUGS," which is divided into two parts, one being devoted to "Fibres: their Botanical Sources, the Methods of Examining Them under the Microscope, and their Treatment by the Ekman Process, with six Coloured Plates;" and the other to "New Plants and Drugs, their Cultivation and Uses." In the first part much information is given concerning the relative merits of the different fibres, amongst which those of the following plants are represented by magnified dissections, accompanied by full description—Flax, Hemp, Jute, Cotton, China Grass, New Zealand Flax, Mudar Bark, Paper Mulberry, Nepal Paper Plant, Esparto, Pita, Manila Hemp, Tricum Palm, Bowstring Hemp, Pineapple and White Fir. In addition to these the chief fibre-yielding plants are referred to under their several natural orders, the mode of preparation, &c., being fully considered, and in some cases particulars of cultivation are also given.

— IN the part of the same work devoted to NEW DRUGS elaborate descriptive notes are given respecting the Papaw, *Lycopodium clavatum*, Carnauba, White Quebracho Bark, Kava Kava, Goa Powder, Coca, and many others. In reference to the culture of the last-named the following particulars are given:—

"The seeds of the Coca are sown on the surface of the soil as soon as the rainy season commences, and begin to sprout in a fortnight, being carefully watered, and protected from the sun by a thatched roof. The following year the seedlings are transplanted in a soil carefully broken up and freed from weeds. The ancient custom was to raise the plants in terraces on the hillsides, but now plantations on the level ground are resorted to, although Indians aver that plants raised under the former conditions yield a much superior quality of leaf. At the end of eighteen months the first harvest is ready, and the picking of the leaves, performed by women and children, is very carefully proceeded with, so as not to injure the young and still tender shoots. As soon as one crop of leaves is removed, if well watered, and the ground carefully weeded, another crop is ready in about forty days. A plant continues to yield for about forty years, and Dr. Poeppig gives the profit of a Coca plantation as about 45 per cent. Each picker carries a piece of cloth, in which the leaves, plucked one by one, are placed. These leaves are then taken to the drying yard, formed of slate flags. Here the leaves are spread out in thin layers, and carefully dried in the sun. Too much exposure to the sun spoils the flavour of the leaf, and if heaped too much together the leaves ferment and become foetid. As soon as dried the leaves are packed in bags made of Banana leaves with an outside covering of cloth, or packed tightly in large parcels of about 50 lbs. each."

It should be remarked that the book is printed upon paper of excellent quality prepared entirely from wood reduced to pulp by the Ekman patent process.

READING SHOW.

AUGUST 17TH.

THE second Exhibition of the year held by the above Society proved a very satisfactory one both in the number and quality of the contributions staged by nurserymen, gardeners, and amateurs, all sections of the schedule being well represented, and in some of the classes the competition was very keen. Owing to the gale on Wednesday night, which greatly damaged the large marquee erected in the Forbury Gardens, a new site had to be chosen at the last moment; and though the exhibitors suffered much unavoidable inconvenience in consequence, yet the selection of the new and old Town Halls for the purpose ultimately proved fortunate, as the unfavourable weather would have deterred many from visiting the Gardens. The new hall is particularly suitable for an autumn exhibition, being very spacious, light, and handsome, affording a striking contrast to the old hall in all respects. Both were well filled with exhibits, the former containing the groups of plants arranged for effect, the stove and greenhouse plants, Ferns, and miscellaneous plants; the other chiefly was devoted to fruit, cut flowers, and a few collections of plants not for competition, while the corridors contained the vegetables. The general arrangements were highly satisfactory, the display in the new hall being especially effective.

Stove and Greenhouse Plants.—The most important class for these was that for nine specimens, of which two very creditable collections were staged. Mr. Mould of Pewsey secured the leading position with even, well-grown, and well-flowered examples of *Ixora Reginae*, *Lantana Don Calmet* 4 feet in diameter and flowering freely; *Clerodendron*

Balfourianum, *Erica cerinthoides coronata*, neat and healthy; *Allamanda Hendersoni*, vigorous and finely flowered; *Ixora Williamsi*, *Statice Butcheri*, and *Dipladenia Brearleyana*. Second honours were accorded to Mr. Lees, gardener to Mrs. Marsland, The Wilderness, for a similarly praiseworthy collection, comprising an exceedingly good *Bougainvillea glabra* of globular form, about 4 feet in diameter, and well flowered; *Tabernaemontana coronaria fl.-pl.*, healthy and fresh; and *Rondeletia speciosa* trained in globular form, and bearing abundant heads of large brightly coloured flowers. In the amateurs' class for six specimens Mr. Mortimer, gardener to Major Storer, Purley Park, took the lead with neat well-grown examples of *Allamanda Wardleyana*, *Stephanotis floribunda*, *Bougainvillea glabra*, and *Ixora Williamsi*. Mr. Hope, gardener to the Hon. R. Boyle, Purley, followed closely with a good *Tabernaemontana coronaria*, *Allamanda Schottii*, and *Plumbago capensis*. Several admirable single specimens were shown, the one selected for premier honours being a globularly trained freely flowered *Erica Irbyana* from Mr. Bennett, gardener to M. Lonergan, Esq., Cressingham. Mr. Hope took the second prize with *Allamanda Hendersoni* healthy and good, extra prizes being adjudged to Mr. Ashby, gardener to W. Fanning, Esq., Whitchurch, for a specimen of *Fanny Catlin Pelargonium* of considerable size and profusely flowered; and to Mr. Lees for a plant of *Stigmaphyllon auriculatum*, evenly trained, healthy, and bearing numbers of its bright yellow flowers.

Fine-foliage Plants.—Three beautiful collections were contributed in the class for six variegated or fine-foliage plants, Mr. Ross, gardener to C. Eyre, Esq., Welford Park, securing chief honours with handsome examples of the following:—*Cyperus alternifolius variegatus*, about 4 feet high and as much in diameter, very healthy, and the variegation well marked; *Maranta zebrina*, of considerable size and good colour; *Alocasia metallica*, fresh and healthy; *Alocasia macrorrhiza variegata*, vigorous; *Croton Weismanni*, bright; and *Bonaparteia gracilis*, very healthy. Mr. Mortimer followed with a collection of slightly smaller plants, but similarly well grown; *Croton majesticus*, *C. Weismanni*, *Yucca aloifolia*, and *Alocasia macrorrhiza variegata* were especially good. Mr. Mould was a third with fair examples. The best four foliage plants were staged by Mr. Bezan, and comprised *Alocasia metallica*, *Maranta zebrina*, *Croton majesticus*, and *C. variegatus*, all very well coloured. Mr. Lees was a close second, his best plant being *Alocasia metallica* in fine condition. For one new or rare plant Mr. Howe, gardener to Sir R. Sutton, Bart., Benham Park, was placed first with a large, healthy, well-coloured specimen of *Croton Truffautianus*; Mr. Ross being placed second with *Cycas circinalis* very healthy and fine, but why it was admitted in this class is by no means clear, as it can be scarcely considered as rare, and it is certainly not new.

For six Ferns Mr. Mortimer carried off the leading award for an extremely handsome collection of healthy, vigorous, but neat specimens of *Davallia bullata*, *Cibotium australis* of great size, *Dicksonia antarctica*, *Adiantum cardiophyllum*, *Davallia Mooreana*, and *Adiantum pentadactylon*. Mr. Ross, who obtained second honours, also had a praiseworthy collection, comprising *Phlebodium sporodocarpum*, *Pteris argyrea*, *Platynerium alcinorne*, *Davallia Tyermanni*, *Pteris umbrosa*, and *Davallia bullata*. Mr. Lees had the best four Ferns—very well-grown examples of *Gymnogramma pulchella*, *G. chrysophylla*, *Adiantum gracillimum*, and *A. farleyense*. As usual Mr. Mortimer had six handsome *Selaginellas* of conical form, and gained the first prize, an equal award being granted to Mr. Hope for a similar collection.

Table Plants.—A class was provided for six plants in 6-inch pots suitable for table decoration, and three excellently representative collections were staged. Mr. Ross won premier honours with neat little specimens in admirable condition, and just of the right size for such a purpose. They were *Caladium argyrites*, a well-known favourite; *Dracaenas Guilfoylei* and elegantissima, both narrow-leaved forms of good colour; two pretty seedling *Crotons*, one with narrow slightly drooping leaves, and the other with spirally twisted leaves; and *Pandanus Veitchii*, the variegated Screw Pine. Mr. Burgess took the second position with rather larger plants, chiefly *Crotons* and *Dracaenas*, an extra prize being deservedly awarded to Mr. Howe for good plants, the best being the far from common, though elegant, *Pandanus gracilis* and *Reidia glaucescens*.

Of the smaller classes the most noteworthy were those for six and three *Liliums* respectively, in both of which Mr. Bridge, gardener to J. T. Hall, Esq., gained the first prize. The specimens comprised some admirable examples of *L. speciosum* very well flowered, and *L. auratum* similarly good. Mr. Burgess had the best six *Coleuses*, small pyramidal specimens fairly well coloured. Mr. Uphill, gardener to R. Garrard, Esq., Wokingham, was the chief exhibitor of *Dahlias* in pots, having four healthy freely flowered specimens of good varieties. Mr. Ashby won the chief prize for six bedding *Pelargoniums* with profusely flowered specimens of Mrs. Moore, Lady Sheffield, Mrs. Storey, Leviathan, Lizzie Brooks, and Sophie Barkin, several of which were 5 feet in diameter.

Groups.—The centre of the new hall was devoted to these, and a very pretty effect they produced, especially when viewed from the gallery. The class provided for a group of plants arranged effectively in a space of 12 feet by 10 feet, about half a dozen exhibitors entering the competition. Although not displaying any remarkable originality most of the groups were tasteful, flowering plants being freely employed, but with sufficient Palms, Ferns, &c., to avoid an

unpleasant glare of colour. Mr. Lees was adjudged the premier prize for a free, light, and diversified arrangement, the base consisting chiefly of Adiantums and other small Ferns, from which arose taller Palms, Ferns, Aralias, and Crotons, with specimens of Campanula pyramidalis, Petunias, Ixoras, and Pelargoniums. The margin was very tasteful, comprising Tradescantia multicolor, Panicum variegatum, Fittonias, and Ferns. Mr. Phippen of Reading gained the second prize with a very meritorious group, in which the useful Hydrangea paniculata grandiflora largely predominated, the plants being all healthy and bearing very large trusses of flowers. Fuchsias, white Lilies, Gloxinias, Begonias, Coleuses, Galtonias, Ferns, and Palms were also freely and effectively employed. An extra prize was awarded to Mr. Sumner, gardener to Mr. Millard, Reading, for a bright group, in which Tropæolums were very telling. Mr. Mayne, gardener to Miss Moon, Reading, was also adjudged an extra prize, and similar recognition was accorded to Mr. Turton, gardener to J. Hargreaves, Esq., Marden-Erleigh.

Cut flowers formed an attractive feature in the old hall, Dahlias, Roses, Phloxes, and Gladiolus being particularly well shown. Messrs. Turner, Lees, Tranter, Atkins, Phippen, Burgess, Jones, Howe, and Durman, gardener to J. W. Wakman, Esq., Reading, were the principal prizewinners. Buttonholes and vases of flowers were chiefly contributed by Miss Kate Phippen, who had some very tasteful arrangements well deserving the awards secured.

Fruit.—The competition in most of the leading classes for fruit was close, the general quality being very satisfactory, especially of the collections. Grapes were also well shown, Plums, Peaches, and Nectarines being very numerous. For a collection of eight dishes, distinct kinds, Mr. Austen, gardener to Sir G. Smythe, Bart., Ashton Court, won the first prize presented by Messrs. Sutton & Sons—namely, a silver cup value five guineas, with good bunches of Madresfield Court and Muscat of Alexandria Grapes well coloured, Williams' Bon Chrétien Pears, Brown Turkey Figs, a seedling Melon from Blenheim Orange, fine Barrington Peaches, Pine Apple Nectarines, and a large Smooth Cayenne Pine Apple. Mr. Miller, gardener to W. H. Long, Esq., M.P., Rood Ashton Park, was a good second, having well-coloured Black Alicante Grapes, fine Moorpark Apricots, Kirke's Plums, and Bellegarde Peaches. Mr. Atkins, gardener to Sir R. Lloyd Lindsay, M.P., Lockinge, was third, having praiseworthy Black Hamburgh Grapes. There were also five competitors in the class for a collection of six dishes, in which Mr. Goodman, gardener to C. Hammersley, Esq., Bourne End, won the chief award, having Black Alicante and Foster's Seedling Grapes of moderate size but in good condition, Crimson Galande Peaches, Moorpark Apricots, Humboldt Nectarines, and Nectarine Plums. Mr. Lockie, gardener to Lord O. Fitzgerald, Oakley Court, Windsor, was a good second, and Mr. Mortimer third. Black Hamburgh Grapes were well shown by Messrs. Ashby, Miller, and Austen, who won the prizes in that order amongst five other competitors. For three bunches of any other black Grapes Mr. Heath, gardener to R. Ovey, Esq., Henley, gained the chief prize with grand bunches of Black Alicante, large, even, and bearing fine bloom. Messrs. Ashby and Everest followed. The best Muscats were staged by Mr. Austen, who had large bunches and berries, even and well ripened. Mr. Robinson, The Royal College, Englefield Green, and Mr. Ashby followed in that order, there being seven other collections staged. The last-named exhibitor gained the principal prize in the Any other white Grape class with fine bunches of Buckland Sweetwater; Mr. Atkins was second with Golden Queen, also good; and Mr. Wells, gardener to R. Ravenhill, Esq., Windsor Forest, was third with fair bunches of Buckland Sweetwater. Plums, Apricots, Peaches, Nectarines, and Melons were well represented, the principal prizetakers being Messrs. Osborn, gardener to the Rev. A. Golding, Sonning; Jones, gardener to Lord Calthorpe, Elvetham Park; Goodman, Atkins, Ross, Lockie, and Austen. Culinary Apples were also largely shown, Messrs. Ross, Turton, and Bennett taking the chief prizes. Messrs. J. Carter & Co.'s prizes for two fruits of Blenheim Orange Melon were gained by Messrs. Lockie, Mortimer, and Burgess, all of whom staged fruit of moderate size, even, and well netted.

Vegetables.—In addition to the prizes offered by the Society for miscellaneous vegetables, which were well competed for, Messrs. E. Webb & Sons, Wordsley, Stourbridge, and Messrs. James Carter and Co., High Holborn, contributed special prizes of considerable value. Messrs. Webb offered four prizes for collections of six distinct kinds of vegetables, and for these there were twelve competitors, all showing admirable collections. Mr. Lockie was first with clean examples of Ne Plus Ultra Peas, Reading Onions, Rivers' Ashleaf Potatoes, and Model Cucumbers, amongst others. Messrs. Bryant, Bradford, gardener to L. Cooper, Esq., Caversham, and Howe secured the other prizes in that order. Messrs. Carter's prizes for Model Cucumbers were won by Messrs. Lockie, Burgess, and Mortimer, all showing even and good fruits.

In the Society's classes Potatoes were largely exhibited, Messrs. Ross and Millen being the chief prizetakers. Cauliflowers, Celery, Onions, Tomatoes, and Cucumbers were also abundantly and well represented.

Miscellaneous exhibits were numerous and attractive, especially two handsome collections of single Pompon, Show, and Fancy Dahlias from Mr. C. Turner of Slough, which comprised a large number of beautiful varieties, the blooms in the two last named sections being extremely fine. Messrs. C. Lec & Son, Hammersmith, had a large and

interesting collection of sprays of variegated and ornamental hardy trees and shrubs, while Messrs. Cross & Steer, Salisbury, exhibited blooms of the new Clove Carnation, The Governor. This variety has creamy-white flowers of good form and substance, and was much admired. T. S. Cocks, Esq., Marlow, sent a collection of Plums grown out of doors, comprising excellent fruits of Impératrice, Coe's Golden Drop, Nectarine, Jefferson's, Belgian Purple, Washington, Victoria, Greengage, and Reine Claude Violette.

GARDEN NOTES FROM NORTH DURHAM.

A FEW fallen leaves make us look up to the trees, and their old-fashioned summer garments remind us that the time is approaching when we should make a note of what has done well with us and is worth keeping another year, and also we must make a note of failures—things not to be attempted again under the same conditions.

Foremost among our own little troubles is a bed of dwarf Tropæolums which is not at all a failure in one sense, since it has been and is yet a perfect sheet of splendid scarlet; yet is not what I should have liked, or is not what I expected it would be, which is something worse. Last year we had a bed of scarlet Tom Thumb Tropæolums which was admired by everybody for its brilliancy of colour and the compact regularity of the plants. This bed was on the side of a wide main road; on the opposite side of the road is an herbaceous border, where the tall-growing section of Tropæolums are grown in abundance for the purpose of covering the boundary wall. Such was the general admiration of the dwarfs that I determined to save some of the seeds for another display the following year. The seeds were saved in quantity and were freely distributed amongst the public, a good number being sown this spring in a cold frame. Only one bed has been exclusively planted with them, and that at the entrance, and out of the whole bed there are scarcely ten plants have not shown the unmistakable habit of the tall Tropæolums that grew opposite them last year. Instead of the small dark leaf and compact dwarf habit, they exhibit large bright green leaves with a tendency to "sprawl" all over the place. Is this degeneration, or is it the result of insect-fertilisation? Cuttings from the same plants as the seeds were saved off are quite satisfactory.

Another failure of the same sort—i.e., plants turning out to be something else than they were expected to be, is a new Golden Feather sent to me by a neighbour with a flourish of trumpets that it "was to eclipse the old variety altogether." It has a long high-sounding name which I never knew, or ever cared to learn; suffice it to say that neither here nor in my neighbour's garden has it been anything at all equal as a yellow-leaved plant to the old Golden Feather. But as a white-flowered dwarf plant it is about as pretty as anything I know of; it has pure white double Daisy-like flowers which it produces in abundance, and does not exceed 8 inches in height. If it is very hardy and can be utilised for spring flower gardening there is a great future in store for it but as a golden or yellow-leaved bedding plant it is no use at in this neighbourhood.

Pansies have been a great success, especially Blue King, Tory, Pilrig Park, and Duchess of Edinburgh, and I had almost omitted the best—Magpie. The first and last of these I often see thriving famously in town gardens. Cloth of Gold does not do well with us, a remark which applies to all the yellows that I know. A local sort without a name is a favourite from its free-blooming properties, and its fine dark colour, splendidly relieved by a bright golden eye. Lilacea is a free and continuous bloomer but of very little substance, and nothing save that property and its remarkably sweet scent to recommend it. By keeping the seed pods and spent blooms assiduously picked off them Pansy beds and borders may be kept in good condition the whole of the summer. Some of ours that are in bloom now commenced flowering in February, and are still good.

Antirrhinums have been very good. We never sow any; there are always plenty coming up in the borders, both of them, Foxgloves, and Canterbury Bells; and by exercising a little care in saving them and transplanting them when and where necessary the stock is kept up and improved. Every year the varieties become more numerous and the flowers better. We have no great quantity of herbaceous plants, but it would be difficult to find anything more beautiful, or anything to give a greater amount of flowers over a longer period, than the red Valerian and its varieties, the white one being particularly fine. Sweet Williams were among our best flowers, large masses of them being very fine. Stocks and Asters do not do well with us, and the only few plants we had of the true Myosotis dissitiflora disappeared during the dry weather in May.

Manure as it is usually understood has no existence here; neither have we any approved earth closets. We have sifted ashes, refuse

soil, and night soil, and we make the most of the mixture. This native guano is applied to all sorts of crops, both flowers and vegetables, it is even used for plants in pots; and I may state here that if a sufficient quantity of it could be had instead of being sent down sewers to the sea, both farming and gardening would be immensely the better for it.—PETER FERGUSON, *Monk Wearmouth*.

THE LONDON PARKS.

PILGRIMAGES from distant parts of the country are made by many who are interested in summer garden decoration to the parks of the metropolis, where the different styles of bedding are so well represented. But after all the visitors are in the minority, and the infinitely greater number of gardeners and garden admirers have to content themselves with descriptive accounts of the beds and the plants that are employed, with the object of gaining information that may be usefully turned to account in furnishing their own gardens or those for which they are responsible. A few notes on the gardening in the London parks will, therefore, not be unacceptable at the present time.

HYDE PARK.

"Hyde Park is very good this year" is an expression that has been frequently heard this season, and not many who have examined the flower beds will dispute the accuracy of that verdict. For several weeks after the planting was done the weather was miserably cold, and the more tender plants, such as Iresines and some of the sub-tropicals, made slow progress; but latterly the days have been bright if not hot, the beds have filled well, and have been bright with both flowers and foliage. There are perhaps more flowers than usual—Pelargoniums—and a less number of carpet or tapestry beds, but what there are of the latter are highly finished examples.

The best route for a gardener to traverse is to enter the Park at the Marble Arch, pass along the margin to Hyde Park Corner near the Wellington Monument, and he will thus "catch" the tapestry and flower beds; then turn to the right, still near the margin, and go on to the Albert Gate. Then turning to the right again he will see the subtropical examples, which culminate in the beautiful dell near the Serpentine; a walk from there "cuts" across diagonally back to Hyde Park Corner and past some large beds filled with ornamental-foliaged plants. The route is not a long one, not much more than a mile, and a great deal more is to be seen than can be told about here; but it is to be feared all the beds cannot be seen now at their best, as the tempestuous wind of the 22nd and 23rd inst., driving with great force from the west, can scarcely fail to have been very injurious to the foliage and flowers.

From the Marble Arch onwards the ribbon border on the left has been gay, the front line of Lobelia Blue Stone very rich. This is an excellent variety where a dark dense colour is wanted. Amongst the Pelargonium beds on the lawn Mrs. A. Miles, a fine pink bedder; Princess of Wales, pale cerise, very pleasing; Pioneer, cherry crimson; and Little Carr, bright scarlet, attract notice. We next come to a glowing bed of the fine old nosegay variety Fire King, edged with the variegated Queen of Queens, and margined with Lobelia Blue King, the latter a pale bright blue, fine for large beds. A mass of Maurice Bernardin, a salmon oculated Pelargonium, is evidently one of the best bedders of its class, and contrasts well with the bright John Gibbons not far distant; but brighter still perhaps is the older—almost ancient for a Zonal Pelargonium—Triomphe de Stella. A bed now, very different and very attractive, compels a pause; it is a large oblong, and is planted diagonally with Pelargonium Verona, a dwarf variety with greenish-yellow foliage and pale rosy-lilac flowers, and Iresine Linden in alternate rows. It is edged with a silver-leaved Pelargonium, banded with Alternanthera amœna and margined with Echeverias set in Sedum glaucum: the combination is very striking. The terminal bed of this group is a round one, having several plants of Dracæna rubra growing from a carpet of Alternanthera. The edging is of Mentha, with Chamæpuce diacantha at intervals, and a margin of Echeverias.

We are now at Grosvenor Gate, and find another series of very fine beds to Mount Street, all edged with Robert Fish Pelargonium, yellow, banded with Lobelia pumila magnifica margined with Antennaria tomentosa. The Lobelia is singularly rich and fine. There are several mixed beds here, which afford agreeable relief to the Pelargoniums. For instance, a mass of Solanum margaritaceum with a groundwork of purple Pansies, and the variegated Abutilon Thompsoni springing from a mass of dark Heliotrope, are both pleasing. Near is a very bright deep scarlet bed of Pelargonium Sir Henry S. Stanhope, very good, and opposite a rich mass of the glowing crimson Rev. F. Atkinson. Rose Bradwardine has succumbed to the showers and is not a safe bedder, and the same may be said of William Thomson; but Ernest, orange scarlet, is free and fine, and there are also grand beds of Mrs. Holden and Fire King. More mixed beds follow—namely, Abutilon Boule de Nieve in a groundwork of A. vexillarium; Melianthus major with a carpet of Alternanthera magnifica, both of which are admired; while Solanum Balbisi mixed with Perilla has a singular effect, the whitish Potato-like flowers contrasting effectively with the almost black foliage. A few more fine Pelargonium beds are C. Schwind, rich glowing crimson, excellent; Sibylla, a fine pink; D. Rawson, cherry crimson, perhaps the best of its colour; but Capt. Holden is very fine; Gertrude, salmon, good; and Lady Bailey, one

of the finest pinks for pots or beds. Some mixtures of silver-variegated Pelargoniums Princess Alexandra and Miss Kingsbury—the two best—and Violas have a pretty effect. The end bed in this section is groundwork of Sedum arachnoideum, which has a curious effect dotted with large Agaves.

We are now at South Street, and onward to Stanhope Gate the edgings are Lobelia Blue King, free and fine as associated with variegated Pelargonium Ariosto, of the Manglesii type, but more resembling Duke of Edinburgh. Passing a bed of Heliotrope Jean d'Amour, a fine dark sort, a glowing crimson mass of Calceolaria Bijou, and a mixture of Acacia lophantha and Iresine, we come to some tapestry beds, which are certainly admirable examples of this style of decoration. In the first bed are central panels and circles of Alternanthera versicolor, surrounded with a scroll of A. magnifica. Then comes a band of Sedum brevifolium majus, between which and a string of Kleinia repens are angles of Alternanthera paronychioides aurea, the bed being completed with marginal lines of Mesembryanthemum cordifolium variegatum, Alternanthera amœna, and Echeverias. The next bed is totally dissimilar in design. It is principally an association of Alternantheras—bars and lines of A. amœna, panels of A. p. aurea, a star set in Golden Feather on a groundwork of A. p. major, and a margin of Antennaria tomentosa. The splendid colour of the Alternantheras is very noticeable, and the bed is rich yet chaste. The last bed to be noticed is possibly still more striking. Two heart-shaped designs of Alternanthera paronychioides major and p. aurea point towards the centre. These are banded with a gracefully arranged scroll of Herniaria glabra, the deepest green, the dwarfest, and the most hardy of all green carpet plants. There are central panels of Pachyphyton bracteosum, and outer crescent-shaped masses of Alternanthera amœna in brilliant colour, and A. p. aurea in the finest possible condition; the bed is margined with Echeverias. These beds are perhaps nearly faultless, and as regards designs, colour, and excellence of condition leave little or nothing to be desired.

Little can be said about the subtropical department, further than that the Palms, Tree Ferns, Cordylines, and other ornamental-foliaged plants are disposed with great taste, and that the dell near the Serpentine has been furnished with a masterly hand. Both Mr. Brown and his experienced assistant, Mr. Chamberlain, are to be congratulated on making this great park so attractive to the vast crowds which have visited it during the present season.

BLACK CHAMPION CURRANT.

WHEN this variety was exhibited before the Fruit Committee of the Royal Horticultural Society at South Kensington in August last, the wonderful size of the fruit and the profusion in which it was borne on the sprays commanded much attention. It appeared to be freely admitted that such a fine Currant had not previously been seen on the Committee table, which from time to time contains examples of the best fruits, new and old, that are produced in this country. It was exhibited by W. H. Dunnett, Esq., of Stour House, Dedham, Essex, and was unanimously awarded a first-class certificate. The great size of the fruit exhibited on that occasion may in a measure have been the result of generous soil, but if the variety were not of intrinsic excellence no kind of soil could have produced such remarkable results. We presume that soil equal to that in which Mr. Dunnett grew the Black Champion is to be found in thousands of gardens, and in the course of a year or two it will be reasonable to expect that many cultivators will have produced fruit equal to that first exhibited, and not unfaithfully represented in the annexed engraving. Plants of the Black Champion Currant will be distributed during the present autumn by Messrs. James Carter & Co. at prices that will be found in their autumn catalogue.

STANDARD ROSES.

I MUST confess that I rubbed my eyes when I came to the signature of the short article on this subject in last week's Journal, and found that it bore the name of so old a grower as Mr. W. Paul; but on reading it a second time the authorship was very apparent. May I, as old a rosarian as the writer, answer his question, "Whence this cry against standard Roses?" and refer to some other statements made in one of the most misleading articles on the Rose I have ever read. Why are they not more grown, then? 1, Because of their dearth. Standard Roses are generally quoted at about three times the price of dwarfs. If the advantages were three times as great this might be tolerated, but as that is not the case it must act as a deterrent. 2, Their ugliness. A mop of Roses at the top of a stick is not, in the minds of many, an ideal of beauty. 3, Their liability to injury from frost. The winters of 1880 and 1881 destroyed them in all directions by thousands, and in the neighbourhood of Brie Comte Robert by millions, and persons who have paid dearly for a thing that succumbs to a severe winter are not likely to repeat the experiment. It is for these reasons that standard Roses are not the

favourites now that they once were. Mr. Paul approves of the saying of his friend, who said they brought the Rose nearer to the

eye and nose, but I fail to see this advantage. They are only to be employed at the back rows of a rosery, and how a person is to



Fig. 13.—BLACK CHAMPION CURRANT.

get at them without walking over his borders I am at a loss to imagine.

Mr. Paul's observations about maiden plants are the most objec-

tionable and incorrect. I should like to know who are the exhibitors who grow Roses for one year and never care for them afterwards? There are a few Roses, such as Horace Vernet, Xavier Olibo, and

two or three more, which are such indifferent growers that they are best in their first year, but there are only four in the National Rose Society's catalogue that are so marked; and it may perhaps surprise not only the uninitiated but Mr. W. Paul himself to hear that Mr. Baker of Exeter, who won the challenge trophy last year, never exhibited from maidens, and that his plants were four or five years old; that Mr. Whitwell, who won the challenge trophy this year, does not grow maiden plants, and neither of them grows standards. Of course growers for sale, budding large quantities every year, have always plenty of maiden blooms, but it would be news to them that they threw away their plants!

It is not every grower who can visit large nurseries and see the plants in growth, and were he to do so he is apt to get confused by the number. He has now, if he will depend on it, a reliable guide in the catalogue of exhibition Roses issued by the National Rose Society, which has been carefully prepared, and in which every needful information is given.—ROSARIAN.

SANDY AND DISTRICT HORTICULTURAL SOCIETY.

THIS Society, which from small beginnings now holds position as the chief horticultural society of Bedfordshire and the district, celebrated its fourteenth annual Exhibition on the 25th inst. in the grounds of J. N. Foster, Esq., Sandy Place, notwithstanding the persistently intermittent showers throughout the day, and which at 4 P.M. culminated in a heavy downpour of rain accompanied by thunder, drew large numbers of visitors, who were, however, chiefly clad in sober grey and black, showing that the fair sex were largely deprived of a pleasant holiday, and it is feared that the Committee, although hacked by a good subscription list, must be financially sufferers. In every other respect the Show, which, somewhat after American fashion, embraces under its wings horticulture, farm produce, poultry, pigeons, birds, bees, and industrial work, was a repeated success.

The show of plants at Sandy, although always a good one, notwithstanding the liberal prizes offered, does not usually attract much competition extraneous from the locality, the deficiency, however, being well supplied by the district. Mr. G. Parker of the Rugby Nurseries has for several years past been the chief, if not the sole, representative of the professional large plant-growers at the Sandy Show, and on this occasion he well sustained his reputation by securing the first place in the open class for ten stove and greenhouse plants in flower, and although little novelty appeared in his collection, his plants were fine specimens, wonderfully healthy, and well bloomed for the season; Allamandas, Dipladenia, Statice intermedia, and Stephanotis being in most creditable condition. The second prize was awarded to Mr. W. Rabbitt, gardener to General Pearson, The Hazells, Sandy, for well-grown specimens, including a good example of Lasiandra macrantha, a beautiful Melastomaceous plant with violet-coloured flowers, but not frequently seen at exhibitions on account of the frailty of its blooms. For six stove and greenhouse plants in flower in the gardeners' class, Mr. Redman, gardener to J. H. Goodgames, Esq., St. Neots, was first with excellent specimens. In foliage plants Mr. G. Claydon, gardener to J. H. Astell, Esq., Woodbury Hall, St. Neots, had a good collection of six, containing a fine plant of Alocasia Veitchii, and received first honours.

In the open class for twelve Zonal Pelargoniums Mr. Rabbitt had admirably grown and profusely flowered examples. Dazzler, Col. Holden, Jealousy, Chas. Seely, bright vermilion scarlet with white eye; and a very dwarf and floriferous variety named Ernest Favre, most distinct and striking flowers, white with a well-defined red eye, sent to Mr. Rabbitt as a gratis addition to a collection by Mr. Cannell, and from which it would seem that rubbish is not always given by the trade to compensate for carriage. A seedling semi-double Zonal Pelargonium named Emily Carbon, from Mr. Carbon of Peterborough, which had deep pink flowers and an apparent white centre, seemed distinct and promising.

Fine stove and greenhouse Ferns were shown by Mr. Tillbrook, gardener to B. Brown, Esq., Hemingford, Hunts, in the collection of six varieties, and for which he was placed first, the centre plant being a grand Dicksonia antarctica. Mr. Claydon was second with almost equally well-grown plants. For four hardy Ferns Mrs. J. H. Astell was first with Athyrium filix-femina plumosum and Victoria, Osmunda cristata, and Lomaria chilensis, all large and well-grown plants.

Roses, considering the season and the recent rough weather, were in good form and force, Messrs. Paul & Son, Cheshunt, being placed first in the open class for forty-eight blooms, twenty-four distinct varieties, their best blooms consisting of A. K. Williams, Madame Willermoz, La Rosière, and White Baroness. Mr. J. House, Peterborough, was a good second, having A. K. Williams, Comtesse Serenye, and Madame Eugène Verdier, a good autumn Rose of the type of Lælia, in fine condition. Mr. G. Parker, Rugby, was third. Messrs. Paul & Son also showed a boxful of their new White Baroness, almost pure white, and of fine form. Mr. House also showed a box of the beautiful orange-apricot Rose, William Allen Richardson, a Tea-scented buttonhole variety, probably destined to be grown largely for market. In the amateurs' class for twenty-four blooms, not less than twelve distinct varieties, the Rev. W. H. Jackson, Stagsden Vicarage, Bedford, was first with fine large blooms, having

good flowers of A. K. Williams, Baroness Rothschild, and Mdle. E. Verdier. The Rev. E. L. Fellowes, Wimpole Rectory, Royston, was second, his best flowers being Marie Van Houtte and Madame Sophie Fropot. C. E. Cuthell, Esq., Chapel Croft, Dorking, was third, Duke of Teck and Marie Van Houtte being very fine in his stand. For the six varieties, Mr. J. Burton, Sawtry, was first, his bloom of Pierre Notting being the best flower, and his stand one of the prettiest in the Show.

Dahlias, not for competition, were finely staged by Messrs. Paul and Son, some of the best being Christopher Ridley, Royal Queen (mauve), Lord Chelmsford, Jas. Vick (maroon), Mrs. Saunders (yellow with white tip), and F. Smith. An attractive stand of single Dahlias came from Mr. E. M. Jones, Cambridge, and Gladiolus from Mr. Parker. Asters were not good, but a fine stand of double Zinnias came from Mr. A. Chapman of Tempsford Mill, and African Marigolds, as usual at this Show, were good, the best coming from Mr. P. Meyer of Orwell.

Fruit was neither so good nor so largely shown as last year, but Mr. Tillbrook's first-prize collection of six varieties, consisting of Muscat and Black Hamburgh Grapes, Peaches, Nectarines, and Plums, were admirable examples of cultivation. In the amateurs' class for four varieties Mrs. D. Brown, Langford, was the premier prizewinner. For two bunches of black Grapes Mr. Tillbrook was placed first with fine and well-coloured Alicantes, and Mr. J. W. Shephard, Great Staughton, Hunts, second with almost equally good Black Hamburghs. For white Grapes the Judges had a difficult task in deciding between fine but not highly finished bunches of Muscats and very fine and well-finished bunches of Buckland Sweetwater. Flavour, however, carried the honours, which fell to Mr. Tillbrook, who was also first for his Alicantes; Mr. G. R. Allis, gardener to Jos. Shuttleworth, Esq., Old Warden, Beds, being second with Black Hamburghs in the same class. Peaches and Nectarines, although largely shown, were not in good colour, want of sun having evidently told on them. Apples included some very fine dishes of Lord Suffield. In Plums a fine dish of the Diamond was attractive, and Morello Cherries were well shown.

Vegetables were well represented in all the divisions, Potatoes especially so, and but slight indications of disease apparent. For the collection of eight varieties of vegetables Mr. C. Ellis, gardener to Mrs. Orr, Pemberley House, Bedford, was first, having large and handsome red Tomatoes, fine Superlative Peas, Cauliflowers, and Turnips in his tray; Mr. G. Vines, gardener to H. Thornton, Esq., Kempston Grange, being a very close second.

The best collection of Potatoes was shown in the market gardeners' tent by Mr. E. J. Darnell of Sandy, and consisted of the following varieties, all of good size, clean, sound, and correctly named—viz., Woodstock Kidney, Early Hammersmith, Beauty of Hebron, Vicar of Laleham, Schoolmaster, Radstock Beauty, Myatt's Prolific, International Kidney, Pride of Ontario, Snowflake, Grampian, Irish Flounders, Improved Peachblow, Early Shaw, Trophy, and Magnum Bonum. In this division the Judges had the good sense to give the preference to a good saleable sample of Magnum Bonum over a large and handsome dozen of International Kidney, which, although captivating as an exhibition variety, is practically useless for market garden purposes. In the single-dish classes Schoolmaster continued to hold first position in white rounds; International and Magnum Bonum chiefly in white kidneys; Mr. Bresee or Peerless Rose and Pride of Ontario in coloured kidneys; and Vicar of Laleham and Triumph as coloured rounds. Beauty of Hebron well to the front in both capacities, and from nearly all sources this is spoken of as the best of all the American type. Fillbasket seems to be a good new flat round white of the Model class. Reading Russet as exhibited is a handsome pink-tinted flattish tuber, but showed no indication of russet on the skin. Not a single dish of Regent and only one of Victoria was visible.

In Peas it is noticeable that the prizes in nearly all cases at this season were awarded for dishes of the Omega and Ne Plus Ultra types, of which some fine specimens were shown. Onions were on the whole inferior and somewhat weathered. The only good novelty remarkable in this department was Carters' Silver Ball, a good globe-shaped bulb with clear silver skin, shown sound, and having the appearance of being a better keeper than the other white varieties. The best brace of Cucumbers, a good strain of Telegraph, came from the Rev. W. H. Jackson.

The nomenclature at this Show was generally very defective and incorrect, and it is a pity that in a district where growers might be expected to profit by such an exhibition that more rigid regulations in this respect are not enforced. Some remarkable orthographical curiosities were observable amongst the Potatoes; "Trofen per Taotto" (Trophy Potato), "Buautey of Eberion" (Beauty of Hebron), "Pride of Tareor" (Pride of Ontario), "Inter Nashneiol," and "Pride-taker" being a few of the distinctions conferred on these worthy vegetables.

PACKING FRUIT.—In the report of the meeting of the Royal Horticultural Society (page 183) it is stated Messrs. Rivers & Son exhibited Nectarines which tasted of the packing material—some rough moss, similar remarks also applying to the Pears sent. Were the fruits sent first wrapped in tissue paper or packed without this? I have packed quantities in moss this season, but have heard no

complaints, but probably if I did not first enclose the fruit in tissue paper the case would be different. If Messrs. Rivers employed paper I shall have to test my present method, or at all events make inquiries of those who eat fruit.—W. I. M.

MANURE USED AT LONGLEAT.

No doubt Mr. Taylor has been harrassed with the criticisms which his valuable treatise on the culture of the Vine has produced. He "has written a book," and must take the consequences; but I hope and believe that the pleasures which he will derive from his useful work will greatly exceed the annoyances which it will entail. He must pardon me, nevertheless, if I recall to his remembrance the words with which "SINGLE-HANDED" finished his first remarks on this treatise at page 73, No. 1765, of the *Journal of Horticulture*. "In conclusion," he writes, "let me hope that Mr. Taylor will not be treated as he has treated other writers. He has, he says, never read any treatise on Vine culture, and laid down the only book he ever took up on the subject whenever he found that he could not agree to all that was in it. Of all Mr. Taylor's mistakes this was the greatest. . . ." Had he taken to heart the good advice which is given to him in this passage I am inclined to think that his remarks concerning my quotations and my implicit belief in chemists might have been suppressed.

I can assure Mr. Taylor that, at all events, I have no doubt that the high opinion which his brother horticulturists have expressed of his labour (as well as Dr. Voelcker's view of the feeble nature of earth-closet manure) "is substantially correct," and that I have every faith in the statement that "a similar example of culture" as that at Longleat "has not been attained at the same time in the Queen's dominions." But all this may be the case, and yet Mr. Taylor may be attributing to a manure that which is rather due to his skill in managing growth. He once changed his opinion as to the character of the soil he was dealing with, at another time he thought that he could grow his Vines without lime as well as he could with it, and on the 25th June last he gave us the highest testimony on the value of Standen's manure, which he now—after no greater interval than two months—recalls, and, as I venture to think, without sufficient proof that the character of the manure is no longer what it was. Now in all these cases he must have thought, when holding such confessedly erroneous opinions, that they were "based on something more than theory;" and supposing a chemist's analysis should show that he is right in his view that there has been a falling-off in the quality of Standen's manure, would it be "madness" on my part, as the manure "has proved practically to be of the greatest possible value, to throw it aside simply because a professor, however eminent, cannot find the fertilising ingredients in it," though backed up by the concurrent testimony of Mr. Taylor? Yet this is the attitude of things, in my mind, as respects the efficacy of earth-closet manure.

Like Mr. Taylor, I have often "wondered why the earth-closet system has not been adopted to a greater extent," but I confess that it had not occurred to me as an explanation that "chemists are responsible for it." I had thought that chemists had merely conclusively demonstrated, by showing that they could find but a small quantity of fertilising ingredients in it, that the conclusions already arrived at by farmers were based on grounds which could no longer be disputed; and I for one must, until Mr. Taylor can show me a reason to change my opinion, continue to hold that this admirable invention from a sanatory point of view does not, when properly carried out, supply a manure which will bear carriage, though it may be used with great advantage by gentlemen having large establishments with garden ground adjoining, or by the cottager; or, again, though it is an admirable system both from the sanatorial and manurial point of view for work-houses, reformatories, and prisons with gardens attached to them.

In conclusion, I would commend Dr. Voelcker's careful and conscientious paper on earth-closet manure to Mr. Taylor's earnest perusal. He will then learn that Dr. Voelcker's views are supported not only by the testimony of Dr. Gilbert, but by the opinion of that eminent agriculturist Sir J. B. Lawes, as well as by common sense; and he will, I trust, see that his acknowledged skill in Vine culture will not be seriously affected by his finding that his Vines, after all, have owed more to Mr. Standen's manures than he is now prepared to acknowledge.—INQUIRER.

A YEAR'S TREE-PLANTING IN GREAT BRITAIN.—Those who regard with dismay the cutting-down of trees, and believe that the area of woodland in this country is gradually disappearing, may take comfort from some of the figures stated in the return we publish elsewhere as to the prices for British timber realised during the season

1881-2. From those figures it will be seen that throughout England, Scotland, Ireland, and Wales, there were planted on various estates during the period under review no less than 3,156,826 trees! Of these, 2,175,826 were planted in Scotland, 646,200 in England, 294,800 in Ireland, and 40,000 in Wales. It is, of course, not easy to get absolutely complete returns, but those we give are well within the mark, and prove that there is at least some set-off against tree-felling and the gradual increase of bricks and mortar in these islands.—(*Journal of Forestry*.)

ON BUDDING AND GRAFTING: OR THE INFLUENCE OF THE STOCK UPON THE SCION AND VICE VERSA.

[Read at a meeting of the North of Scotland Horticultural Association at Aberdeen on August 18th, 1882.]

(Continued from page 174.)

BY GRAFTING ON CERTAIN STOCKS THE HABITS OR GROWTH OF PLANTS ARE ALTERED.

1. Pears grafted on the Quince do not grow so strongly and are more fruitful than those on the Pear stock.

2. Apples worked on the French Paradise stock do not grow so vigorously as those worked on the Doucin, and those on the Doucin are not nearly so strong-growing as those on the Crab or free stock.

3. Cherries do not grow so strongly when worked on the Mahaleb stock as they do when grafted on the wild Cherry. These are all termed dwarfing stocks.

The *Acer eriocarpum* is said in Loudon's "Horticulturist," when grafted on the Sycamore, to attain double the height of those raised from seed. The common Lilac attains a large size when grafted on the Ash.

4. Mr. Fairchild's experiments in 1721 on grafting the Evergreen Oak on the common Oak, and the Cedar of Lebanon on the Larch, rather prove the converse, both scion and stock retaining their natural character.

BY GRAFTING ON CERTAIN STOCKS WE ARE ENABLED TO GROW PLANTS IN UNCONGENIAL SOILS.

1. The Quince roots, for example, extend near the surface, and thus avoid a wet or cold subsoil. The Pear roots are sent down into the deep cold soil. For wet or moist heavy soils, therefore, it is found practicable to plant Pears worked on the Quince, and on dry shallow soils those worked on the Pear.

2. The French Paradise Apple is also a surface-rooter, hence its use in damp soils is to be recommended.

3. In strongly calcareous soils it has been found that what are termed the dwarfing stocks for fruit trees do not succeed. M. Dubreuil of Rouen found that not the Plum but the Almond was suitable for the Peach; not the Paradise or Doucin and Quince for Apples and Pears, but the Crab and wild Pear, &c.

THE SCION INFLUENCES THE STOCK.

The fact that the scion exerts a certain influence over the stock is fully more remarkable than that of the stock influencing the scion. It demonstrates that the scion supports the stock as much as the stock does the scion, and that the sap flows in every direction. The branches are, in fact, as necessary to support the root as the root is to support the branches.

1. The French Paradise Apple in the gardens at Chiswick invariably dies when about five or six years old; but when grafted with other varieties of Apples this tendency to die is averted, the grafted trees living to indefinite periods.

The peculiar power of the buds of variegated plants inoculating the stock on which they are budded has often been demonstrated.

1. The best-known instance is that of the variegated white Jasmine being budded by Mr. Anderson, of the Physic Garden at Chelsea, upon one branch only of a plant of *Jasminum revolutum*, which is green. Slight variegation appeared the first year, which increased year after year until the whole plant was variegated, although the branch which was first budded was cut away the second year.

2. Mr. Noble records in the *Gardeners' Chronicle*, 1871, the grafting of a golden variegated Weeping Ash on the common Ash. In four different cases the stock had thrown out variegated shoots.

3. Mr. Symes records in the *Gardeners' Chronicle*, 1877, the budding of a number of *Acer Negundo* with the variegated variety. The variegation affected the whole of the stocks, both above and below the point of insertion. Twenty-seven Ash stocks budded with the Aucuba-leaved variety, all of which grew and looked well for a time, the next spring the majority fell; only three grew. Two-thirds of the number were more or less inoculated with the variegation of the Aucuba, below as well as above, where they were budded.

4. Mr. Fish records in the *Gardeners' Chronicle* that a Purple Beech, grafted about 4 feet from the ground, at the base of the bole

a tuft of shoots with copper-coloured leaves appeared, and another at 15 feet above.

5. M. Carrierre records the working of the variegated form of the *Pittosporum Tobira* on the green-leaved form. Though the graft did not grow the contact was sufficient to cause the production of a variegated shoot below the graft.—(*Gardeners' Chronicle*.)

6. *Passiflora Ruddiana* and *Passiflora Impératrice Eugénie* were both grafted by M. Lemoine of Nancy with a variegated scion of *Passiflora quadrangularis*. The graft was inarched, so that the stocks were not cut away above the graft but allowed to remain. From this branch above the graft branchlets were produced bearing variegated leaves. The grafts did not grow well.—(*Gardeners' Chronicle*, 1875.)

7. A golden-leaved *Laburnum* was budded on a green-leaved *Laburnum* as a stock. The buds were inserted at 2 or 3 feet from the ground. In the course of a few months not only did some of the green-leaved stocks produce golden variegated branches below the point of union, but golden suckers were thrown up from the root.—(*Meeting Royal Hort. Soc.*, 1875.)

8. The variegated variety of *Castanea vesca* had been grafted standard high on the common Chestnut. The graft took, but from some cause died; but subsequently a young shoot with well-marked variegation broke out from near the base of the stem.—(*Cultivated Plants*, Burbidge, 61.)

9. The well-known blotched Breadalbane Ash was produced from buds taken from a yellow-leaved Ash in a Highland glen budded into the common Ash.

10. A Mountain Ash, upon which was budded a variety with variegated leaves, commenced to push forth young shoots from the main body of the stem below the point where the bud was inserted. In every instance these had variegated leaves.—(*Pro. Am. Pom. Soc.*, 1873.)

11. A Potato scion set into a Tomato plant induced the latter to set small tubers in the axils of its leaves, as are seen sometimes on the tops of Potatoes. The grafting of an Artichoke plant into a Sunflower caused the latter to form tubers underground.—(*Prof. Beal, Ag. Michigan*.)

12. Fruit-growers in America have noted that the scions affect the roots of the stocks. If, for example, part of the same row of stocks be grafted with Bartlett and Onondago Pears, they can be distinguished by their roots.

13. The curious *Cytisus Adami* or Purple *Laburnum* is a well-known example—three distinct sorts of flowers, all mixed on the same plant. This is, no doubt, a common *Laburnum* inoculated with a purple *Cytisus*. A fine example of this used to exist in the gardens at Crathes Castle, Banchoy. Numerous other well-authenticated examples of this strange influence of the scion over the stock might be given, but my object is attained in pointing out that it does exist.

This inoculation of the stock with the peculiar properties of the scion must not be confounded with that of "sporting," because each of these are, or have been, the direct result of the budding or grafting, as, indeed, they are true reproductions of the scion in many cases. It may be noted that in the majority of instances the buds inserted either did not grow or very soon died out after being worked, so that the potency of the contact seems to be all the more wonderful.

PECULIAR RESULTS OBSERVABLE IN BUDDING AND GRAFTING.

The vagaries of grafting and budding, if I may so term the peculiar preferences that particular varieties of fruit have for one kind of stock, are very remarkable, and in the present state of our knowledge quite inexplicable. For example, amongst Peaches it is well known in nurseries that the varieties *Grosse Mignonne* and *Bellegarde* take freely on the Brussels Plum stock, but will not take on the Musclem Plum. Other varieties, however, do so freely, and what is termed the Brompton Plum stock suits them all about equally well.

Amongst Plums, Mr. Bunyard, Maidstone, says the Belgian Purple, although of the Orleans class, will not succeed on the same stocks as the Orleans, but does well on the Musclem and Damask stocks. Rivers' Czar will not do on any but the Musclem. Damsons do not do well on the common Plum stocks. Wyedale Plum does not take freely on the Musclem, but fruits early—the first year instead of the second.

Amongst Pears the Marie Louise, for example, and many others will not succeed on the Quince. These varieties, if to be grown on the Quince, must be double-worked—i.e., worked on some variety that is itself worked on the Quince. The *Beurré d'Amanlis* is often used for this purpose. Some years ago I made a number of experiments in grafting Pears on all sorts of stocks, such as *Cratægus coccinea*, *C. oxyacantha*, *C. acerifolia*, *Cotoneaster frigida* and laxi-

flora, Portugal Laurel, Quince, &c. The variety Winter Nelis appeared to take freely on all, whilst Marie Louise only succeeded on *Cotoneaster frigida*.

Apples may be grafted on a Pear, or a Plum upon a Cherry; indeed, I have done so, but such do not last above a year or two. The Orange takes better on the Lemon than on the Orange, and the little Kumquat will only grow on the *Limonia trifoliata*.

The well-known Rose *Maréchal Niel* will not grow on the Manetti, I am informed by Mr. Lane, whilst on other stocks it grows freely.

Mr. Noble of Sunningdale informs me that he uses the *Aucuba japonica* as a stock for *Garrya elliptica*. What affinity is existent here?

Some trees seem to have constitutions fit for anything almost; others are most fastidious—vigorous enough in their own nature, but alter that ever so little, even by the application of an uncongenial stock or scion, and it produces sickness and death.

Grafting Coniferae.—A great discussion was raised a few years ago on the merits of grafting *Coniferae*, especially those belonging to the *Abies* and *Pinus* sections, the practice being generally condemned as not being calculated to produce good or lasting trees. Magnificent examples to the contrary, *Abies nobilis* and *Picea pinsapo* 50 feet high for example, may be seen in Mr. Anthony Waterer's nursery at Knaphill; and in Mr. Noble's nursery at Sunningdale may be seen an avenue of several score of *Abies Nordmanniana* 30 feet in height—all perfect examples and all grafted on Silver Fir.

Potato Grafting, &c.—A few years ago much was written and many experiments made on grafting Potatoes, and several graft-hybrid Potatoes were supposed to have been raised, but I much doubt if such were the case. In some cases, probably, the cellular tissues of the Potato did unite, but there was little or no action between the stock and scion. An instance is recorded in the "Theory of Horticulture" of grafting the white Silesian Beet upon a root of red Beet. A complete junction was effected, but it was a mere junction of cellular matter; each grew and retained its peculiarity "without any interchange of contents through the sides of the cells in contact."

A variety of interesting topics and side issues to this great subject suggest themselves to me, and might be profitably discussed; but I refrain. I hope, if I have not been able to advance anything that may be considered new or instructive or of particular interest to many of you, you will believe in my earnest desire to do so, and in fostering a genuine love of horticulture amongst my fellow countrymen.—A. F. BARRON, *Chiswick*.

AUGUST SHOWS IN SOUTH WALES.

FEW counties surpass Glamorganshire in horticultural societies and shows. During August there have been more shows held in it than takes place in all the rest of Wales in a year. Upwards of £800 has been awarded in the county for fruits, flowers, and vegetables—a result which is creditable to all concerned, more especially as Glamorganshire is not renowned for the number and splendour of its noblemen's seats and great gardens. Certainly it contains some of the best families, and no one can complain of their want of interest in horticulture, although they do not support the shows to such an extent as is done in many parts of the country. This is not to be regretted either, as it is when all grades of Society augment the funds with their pounds, shillings, and pence, and make the shows with their products, that the most gratifying results are secured and the greatest benefits accrue. To those sources the Glamorgan shows owe their success, and it would be well for the prosperity of our art if this system were widely and generally followed.

From Cardiff to Neath, as the Great Western Railway runs, is a distance of some thirty miles, and in this distance seven flower shows were held during August. Taking them in rotation, the first was that of the MARGAM COTTAGE GARDENING SOCIETY, which took place on the 3rd of the month. The last Show was the fifth annual one. Competition is confined to the parish. As the funds have increased more money has been given in prizes. This year £5 more was taken as gate money than on any previous occasion. A good surplus has been left from every show; the reserve fund in the bank is over £40. Sunshine has been the rule at every show, but this "nest egg" will be very convenient in case of any misfortune. Prizes from £1 10s. downwards are given for the best cottage gardens, and for competition the prizes are offered chiefly for the kinds of garden produce most valuable to a cottager, such as Potatoes, Cabbage, Onions, Beans, Peas, Turnips, Carrots, Parsnips, &c. The competition in these is always very strong, and it is generally admitted that nothing has ever done so much for the good of the gardens in the parish as this Society. Certainly the majority of the parishioners now possess much practical knowledge as to which are the best kinds of vegetables, and many new sorts are tried and secured which would otherwise remain unknown.

BRIDGEND SHOW.—This was held on August 9th. Many open

classes are offered here, and cottagers are well provided for. The vegetables of the latter throughout South Wales are always a great feature, and as a whole they surpass those from the professional gardeners. Indeed the cottagers take a wonderful delight in trying to excel, and many of them are not satisfied with their own classes, but enter and do well in the open ones. Fruit and plants were very attractive at Bridgend this season, the finest coming from Ewenny Priory, the Glamorganshire seat of Col. Turberville.

NEATH SHOW.—This was held on the 10th inst., and is one of the best conducted shows in the country. Upwards of £300 is given in prizes annually. The Hon. Sec., Mr. Whittington, is a gentleman of the greatest tact and energy, and his Committee work so hard and close together that it would be well in many instances were their system adopted. Long lists of committeemen's names occur often enough, but how seldom are they all workers. The burden is generally thrown on two or three, and failure is often the result. Every department of horticulture was well represented at Neath. The principal plant prize—viz., £10, went to Mr. Cypher of Cheltenham, and it is well known that his plants give a high tone to any show. We have never as yet seen a bad specimen in one of his many collections. Golden Champion Grape was well shown, and was justly awarded the first prize as a dish of whites. Black Hamburgs were shown in prime condition from the garden of J. T. D. Llewelyn, Esq., Penllergare, Swansea, and the Carnations and Picotees from the same source were splendid. The attendance of visitors at this Show is always great, and we were more than pleased to see the crowd as bulky this season as ever. As before stated, no show could be better managed, none is worthy of greater support, and we hope this will never be wanting.

ABERKENFIG SHOW.—This was held on the 16th, and is conducted on the Margam principle, and we can only hope it will support itself as well and do as much good.

ABERAVON SHOW.—This is the name of a Glamorgan borough, and the chief members of the Corporation are on the Flower Show Committee. The Mayor, T. D. Daniel, Esq., was the originator of the movement, and is now the permanent President. This gentleman, along with the Committee, worked hard to secure success, and they were richly rewarded, as the Show itself was most notable for the great merit of the exhibits. Subscriptions came in well, and the attendance was extraordinary. The Earl and Countess of Jersey opened the Show, and before the close it was visited by many thousands of people, the receipts at the entrance gate being over £122. Mr. Cypher's plants were again conspicuous, and the collections of wild flowers were the finest I have seen at any show.

CARDIFF SHOW.—This is always a grand one. This year it was held on August 23rd. All the tents had been erected on the night of the 22nd in a field close to the town, and it was intended to have the Show in them as usual next day, but during the night the tents were all blown down, and a hurried arrangement of the exhibits had to be made in the Market Place. Notwithstanding this the Show was a most excellent one, all the classes being well filled with produce much above the average in quality. The best of the plants came from Mr. Cypher, Cheltenham, and Mr. Howells, Cardiff. Cut Roses were numerous and good. Mr. Crossling, St. Fagans, who is about to enter in the nursery business at Penarth, near Cardiff, had, as usual, some splendid stands of blooms, and secured the principal prizes for Hybrid Perpetuals and Tea varieties. Mr. Pettigrew, Cardiff Castle, also showed well in several of the Rose classes.

Fruit was better than we ever saw it here. The first-prize collection of nine dishes was superb and came from Mr. Crossling. One of his two dishes of Grapes was Alnwick Seedling, good in size of bunch and berry, and finely finished. For Black Hamburgs and Muscats Mr. Coomber, Hendre Park, Monmouth, was first, his Hamburgs being particularly fine. For any other black and any other white Grape Mr. Pettigrew was first in both instances, in one with grand Alicante and the other with well-ripened Foster's Seedling. Pines were numerous and good. Mr. Wood, Maindiff Court, Abergavenny, showed some very fine Queens and Smooth Cayennes. Mr. Hawkins, Ewenny, had also some grand dishes of stone fruits.

All the prize money was paid the day after the Show, and this is worth noting, as carelessness in this matter frequently tells sadly against a society in time to come. Exhibitors who have a difficulty in getting their prize money one year are not very anxious to do all they can for the society the following show, and we do not blame them; but this character does not apply to the shows in South Wales, and it is our opinion that they are a credit to all connected with them, and deserve to be supported in every possible way.—A SCOTCHMAN IN WALES.

LOBELIA CARDINALIS.

ATTENTION has been worthily directed to this grand old herbaceous plant. It has been described on page 175 as growing 3 or 4 feet high under favourable circumstances, but I have had quite a forest of brilliant spikes 5 feet high, and nothing in the garden was so gorgeous. They were grown in the lower pockets of a rockery at the margin of a lake, and the roots of the plants no doubt penetrated quite through the soil into the water. The compost was further prepared for them, and consisted of a mix-

ture of burnt, or rather charred, clay and cow manure, in which the growth of the plants were most vigorous. They could not, however, be safely left out all winter in such a position, and the best of them were always taken up and wintered in a cool pit, the roots being packed together and soil worked amongst them as if preparing Rhubarb roots for forcing. In drier borders plants have survived the winter, but were never so fine the following year as young plants were that had been preserved, prepared, and planted in rich fresh soil. In planting in the borders the practice was to have a barrowful of soil at hand, dig out a spadeful or two from the border and spread it, add the fresh, and insert the plants. A splendid return was always had for the little labour thus invested, and the fresh, heavy, and rich compost. Well-grown examples are grand also in pots for the conservatory in the autumn. For this purpose the dark-leaved sorts, *L. fulgens* or *L. ignea*, are well adapted; but it was the true old green-leaved species, *L. cardinalis*, that I had so fine in borders and on rockeries thirty years ago. It does not appear to be by any means plentiful now, and it ought to be increased, for no plant will better repay for good culture nor produce a more dazzling display under favourable circumstances.—A RETIRED GARDENER.

MR. TAYLOR'S ESSAY ON VINE CULTURE.

My absence from home has prevented me answering Mr. Taylor sooner. To use the words of "SINGLE-HANDED" on a former occasion in reference to Mr. Taylor and his Vines, I am "astonished he should seek to evade the responsibilities of his assertions;" but I can well understand his confessed aversion to "parallel passages." As he makes no satisfactory attempt to defend himself in regard to the last and other points raised by me, I feel I can safely leave the verdict with those of the public who understand such matters. Mr. Taylor's attempt to divert attention from the real issue by proposing to compare our Grapes is too transparent. It is not his Grape-growing that is assailed, but something else equally precious to him I should think. I should not have had the least objection to accept his challenge now, or at any time since he began (and if he had included other fruits besides Grapes I should have been still better pleased), had he been able to show how the comparative merits of our fruit was going to prove his avowed all but total ignorance of other people's writings and systems, more particularly in view of the fact that he is an expert shorthand writer and admits to using it in his notes; but he is unable to do anything of the kind, and I decline the frivolous and irrelevant contest.

I have on many occasions entered the lists among my fellows and equals and staked my chance there, and that is the course I should choose to adopt again if so disposed, and I could boast that I grew the best Grapes "in the Queen's dominions;" but I never did meet Mr. Taylor on any of these occasions, nor never heard of him meeting anybody; but that is the place I should have thought he would have chosen to exhibit his productions had he the confidence he professes. I do Mr. Taylor the justice to believe that his own account of his successful practice is true, but he must be conscious that to many readers, and certainly to me, his methods of culture are "paper methods" and no more; but I should be sorry to use that and the like expressions in an offensive sense to any man whose practice and results I was personally wholly unacquainted with.

Had Mr. Taylor been pleased to stake a benevolent wager in the hands of the Editors, and challenged me to prove from his late essay that he was perfectly well acquainted with the writings of other authors and their systems—if he is not open to the suspicion of being indebted to them for some of his words and ideas, notwithstanding his declaration to the contrary—I should have taken him up, and am ready to do that yet. I should have felt, had I been in his place, that it was *there* my "honour gripped," and should have acted accordingly.—J. S. W.



KITCHEN GARDEN.

CABBAGE as a spring crop is one of the most important, a supply being necessary in all gardens. The plants from the July sowing should as soon as fit be planted out in rich soil, choosing an open situation, but if possible sheltered from winds, as the autumn gales

often do the plants serious injury. Ground which has been occupied with Onions after it has been manured and turned answers well for this crop, the plants being placed out at about 18 inches apart, which is ample for the earliest; but plants of the main crop should be given more room, 20 to 24 inches according to the variety and size of head desired, and should have attention to keep them free from the attacks of slugs by dusting whilst damp with dry wood ashes, soot, or quicklime. Avoid keeping the plants too thickly in the seed beds, transplanting as many as will be requisite, and thin out the rest. A batch of the latest of these should be pricked out into beds to winter for planting out in the spring.

Winter Spinach will by this time require thinning, which should be done before the plants are very large. Allow sufficient space between the plants to prevent their damping off during bad weather, and keep the soil between the rows well stirred. The latter observation also applies to all other crops at this season. The whole surface of the kitchen garden where practicable should be hoed. When autumn-sown Onions are sufficiently advanced thin them to about 3 inches apart, which will admit of every alternate one being removed for early spring use as they are required. Where young Onions are in request they should be left thicker in the rows to allow of their being drawn as required; but where fine bulbs are required the plants must not be allowed to become weakly by being too thickly placed. Take up the main crop of Onions as they mature, and let them be fully exposed for a few days before storing them away.

Attend to the requirements of young Cauliflower plants, dusting them with dry wood ashes, soot, or quicklime as a preventive against the attacks of slugs, and do not allow them to stand too thickly, or they will be liable to shank. Another sowing should be made at once to obtain plants for pricking into frames or at the base of walls to stand the winter for spring planting.

Lettuces recently sown will need to be thinned as soon as the plants can be handled, and every encouragement must be afforded by stirring the surface soil in suitable weather, and dusting with quicklime. Another sowing may now be made of the hardy Cos varieties, Bath Cos (black-seeded), and Hicks' Hardy White, in a sheltered position to stand the winter in the seed bed for transplanting in spring. Maintain a good supply of salading, seeing to its being in proper condition for use by tying up at intervals, so as to secure well-blanching heads, and supply water abundantly in dry weather. Radishes should now be sown in more sheltered situations; a sowing made now will last well into autumn. Select fine days for earthing Celery, keeping the soil from the centre of the plants by drawing the stalks together and firming it well about them.

Cut away useless stems from Globe Artichokes, and remove all decayed leaves, so as to admit sun and air to ripen them at the base. Remove the leaves from over the clusters of Tomatoes outside, and keep all growths removed, so as to concentrate all the energies of the plants on the fruit in order to accelerate its swelling and ripening.

FRUIT HOUSES.

Pines.—Many of the suckers or plants started as such last autumn now have fruit swelling especially those of the free-fruiting sorts, which should be separated from the others started at the same time, as those not now in that condition will have completed their growth, and will the more readily start into fruit at the required time if subjected to liberal ventilation for about six weeks than if kept in a confined moist atmosphere. Therefore ventilate freely upon all favourable occasions, it not being possible to give too much air when the temperature is above 80°.

The suckers which were obtained from the summer-fruiting plants will soon be ready to be repotted if it be not already effected. The strongest should be shifted when they have become well rooted and before the roots are matted round the sides of the pots into 10 or 11-inch pots according to the variety. The plants should be afforded a position near the glass in a light well-ventilated house, and be kept gradually growing throughout the winter months, under which conditions the plants start into fruit the following May or June, and afford a supply of early autumn fruit. The remaining portion of the plants referred to above may be wintered in 7 or 8-inch pots, and be

transferred to the fruiting pots in spring, and these in conjunction with Smooth-leaved Cayenne and Charlotte Rothschild started as strong suckers last March will provide a successional supply of ripe fruit throughout the winter months, being supplemented by Queens and other varieties started at the same time.

Maintain the bottom heat steady at 80° to plants which are well established, and about 90° to those plants which have been recently repotted, continuing it until the roots have penetrated the fresh material, then lower it to 80°. Where fruit is swelling keep the atmosphere moderately moist, and give a little ventilation at the top of the house early in the morning to dispel superfluous moisture before the sun's rays affect the fruit. Ripe fruit required to be kept should be removed to a shady and well-ventilated house.

Peaches and Nectarines.—The fruit in all but the latest succession houses will be removed, and to ensure the proper maturing of the wood remove all shoots not required. Do not neglect to syringe the trees with the garden engine occasionally to keep red spider in check, and well water the inside borders whenever necessary, as the casting of the buds is due in a great measure to their imperfect formation, consequent on insufficient moisture at the roots of the trees after the fruit is gathered and the buds are being plumped, along with neglecting to keep the foliage healthy to the last.

Remove the roof lights from houses in which the trees have ripened their wood to induce complete rest and the cleansing of the trees from insects by the late summer and early autumn rains. Where any planting or adding fresh soil to the borders has to be done the present is a good time to procure and stack a supply. Rather strong turfy loam of a chalky or calcareous nature is most suitable, giving preference to loam overlying magnesian limestone, and this, without any admixture of manure or other substance, induces a healthy growth of the trees. Trees for early forcing should not be deferred planting later than the end of September.

PLANT HOUSES.

Stove.—*Clerodendron fallax* is most useful when grown from seed each year and flowered in 7 or 8-inch pots. For this purpose the seeds should be sown as soon as ripe in small pots, and kept shaded and moist until they have germinated, when the seedlings should have light position, a shelf near the glass being the most suitable. When the plants have a pair of leaves shift them into 6-inch pots, employing turfy loam with a fourth of leaf soil and a sixth of sharp sand. Old plants that have flowered and are intended to be kept for another year should now be cut down low, keeping them warm and damped every afternoon until they have commenced growth, when they can be partially shaken out and placed in smaller pots for winter.

Æschynanthuses now coming into flower must be well supplied with water, especially if grown in baskets, for which they are peculiarly suitable when grown in pots plunged in the baskets, the spaces being filled with sphagnum; and if a few pieces of *Selaginella caesia* are introduced it will greatly improve their appearance.

Euphorbias that were some time ago removed into cooler quarters must not be allowed to remain there too long, or they will suffer at the roots and fail at a time when they ought to be coming into flower. A pit or house where they can have a minimum night temperature of 55°, with abundant ventilation and a light position is the most suitable.

Poinsettias must only have sufficient heat to keep them slowly growing, with a light airy position, and water as necessary to keep the plants from losing the lower leaves; but excessive watering must be avoided, as it causes the roots to perish and the head of bracts is small. *Bilbergias* are much-neglected plants, though easily grown and very beautiful. *B. Moreliana*, *B. thyrsoidea*, *B. splendida*, and *B. vittata* are worth a place in every stove, being handsome in foliage and their fine racemes of bloom are striking. The pots for these plants should be well drained. Fibrous peat with an admixture of charcoal and sand to the extent of about a sixth will suit them well. Propagation is effected by suckers, which should remain on the parent until they become strong. When detached they will root freely. Eight-inch pots are large enough for single-crowned plants.

THE BEE-KEEPER.

THE SOUTH KENSINGTON BEE AND HONEY SHOW.

IN reference to this Show, and the list of awards which we published last week, we commence our remarks at Class 24—"for the largest and best collection of hives and bee furniture applicable to modern bee keeping, no two articles to be alike"—since, generally speaking, it is the one most important to bee-keepers. Messrs. Neighbour & Son of Regent Street obtained here the highest honours. In their collection we noticed amongst a large number of other hives a pretty specimen termed the Crystal Case Hive, with sections at side and space also for chaff-packing or other warm material in winter. Root's American Chaff Hive also appeared to obtain a full share of notice; and Novice's Extractor, another American production, seemed to be generally approved. The bronze medal was obtained by Mr. T. B. Blow of Welwyn, Herts, for an excellent collection of modern bee appliances. The hives we thought especially worthy of notice, well put together, of good sound material, and involving the right principles of simplicity, ease of manipulation, and variety of use. The improved feeding-bottle on this bench, which obtained a prize in another class, appeared to leave nothing further to be desired in this all-important branch of apiculture—slow or stimulative and copious feeding. Mr. Rusbridge, whose various exhibits and apparatus, so well known to modern and scientific bee-keepers, need no description at our hands. Messrs. Tait and Wooldridge, who rank, we believe, as apiculturists of note, also worthily competed in this class.

Having briefly noticed this most important department of the Exhibition, we return now to the classes in numerical order, the first three of which are devoted to bees of the several different varieties, Messrs. Neighbour taking first in Class 1 with a finely marked stock of our old friends the Italians. This race appears to have undergone some change of late years, in appearance at least, since those we remember as being introduced by Mr. Woodbury some twenty years ago were certainly of lighter colour and smaller in size than the modern variety. We believe, however, this larger darker race is unsurpassed in the most desirable traits of honey-gathering, fecundity, and gentleness of disposition. Messrs. Blow and G. Bertoli of Varallo-sesia, Italy, well deserved their positions (second and third) for their bright specimens of this beautiful insect.

Class 2 was for English bees only, which, like the old English rat, is, we fear, doomed ere long to extinction, so difficult is it even now, owing to the introduction of the foreign varieties, to obtain a stock of the pure old English black bee. There were only two competitors here—Messrs. Blow and Neighbour, first and second, and whose exhibits to our eyes were of that brownish tint which speaks of foreign blood notwithstanding their uniformity of colour.

In Class 3, for any other variety than Italian or English, Mr. Blow was again champion (first and second) with fine stocks of the too-little known Carniolians and Cyprians, the former a large black bee with white hairy bands around the abdomen, and said to be extremely prolific and an excellent worker; the latter one of the most beautiful, if not the best, of all varieties, but at present considered by many the most irritable and revengeful of all, and utterly heedless of smoke. It may be that it requires to be "educated" to English notions and manipulation, when assuredly it will become the "bee of the future," and this we say advisedly. Another beautiful stock of Carniolians secured for their owners, Messrs. Neighbour, third place. These bees were all exhibited with their queens in observatory hives.

Next on the list are the hive classes, of which there were six. First, Observatory (Class 4), there being seven entries, and nothing requiring special notice except Messrs. Neighbour's first-prize hive, embracing both novelty and a new principle, of which we give an engraving (fig. 34). The hive proper consists of a mahogany box about 2 feet long, and of the usual width for frames. These frames slide on metal runners, and can be moved backwards and forwards with the hands at the openings along the sides. Across the centre is an open oblong space about 2 inches wide, surmounted by a glass case to allow of the ascension of one frame of comb. Any one of the frames separately can be brought under this glass case. Two rods are then lowered, and catch two hooks with which each frame is provided. By turning the windlass above, the frame of comb with bees adhering is slowly raised for observation and as quietly lowered and passed to the other side of the centre, thus providing space for the examination of the next comb in a similar manner. The queen may thus be readily "interviewed" and the bees remain in a perfectly natural state.

The glass case revolves, in order that the light may be caused to fall upon the object desired. The bees may be kept in this hive all

the year round, since a division-board is used for contracting space during the winter months, and in summer frames containing sections are placed near the brood nest.

The remaining hives in this class demand no special notice, as involving any new principle or novelty of construction. The second and third-prize hives, and Messrs. Abbott's highly commended one were rightly placed. We regret that the same remark will not apply to Class 5, "Moveable-comb Hives, with facilities for harvesting honey, and arrangements for winter use, price unlimited." We have always imagined that utility was the object to be kept in view in the selection of a hive for general use, and that the prizes should go to those hives best calculated to advance apiculture and to create an impetus in its favour; but upon what principle the first-prize hive in this class was awarded the silver medal we are at a loss to conceive. For ourselves we should have placed it last in the class of seventeen entries. First, its principle was that of the old and exploded Giotto system with its closed frame ends, so well calculated for receiving propolis and cruelly crushing its inmates, a principle which has long been discarded on the continent of America and in other countries—wherever, indeed, bee culture has advanced beyond the state of infancy. Placed upon a lofty iron stand—while advanced bee-keepers place their hives, if not upon the ground, as near to it as possible—most complicated in all its parts, with no price attached, we were not surprised on inquiry at the Secretary's office on the last day of the Show at being unable to learn either the price at which or the maker of whom we could procure a specimen, and at being informed that no previous inquiries had been made as to price or maker. May we suggest to the Committee the desirability of an increased staff of Judges on future occasions? It was evidently impossible for two gentlemen to do full justice to eleven classes, six of them being large hive classes, in the time assigned to them. The second-prize hive was remarkable for its simplicity of construction. Mr. Hooker's third-

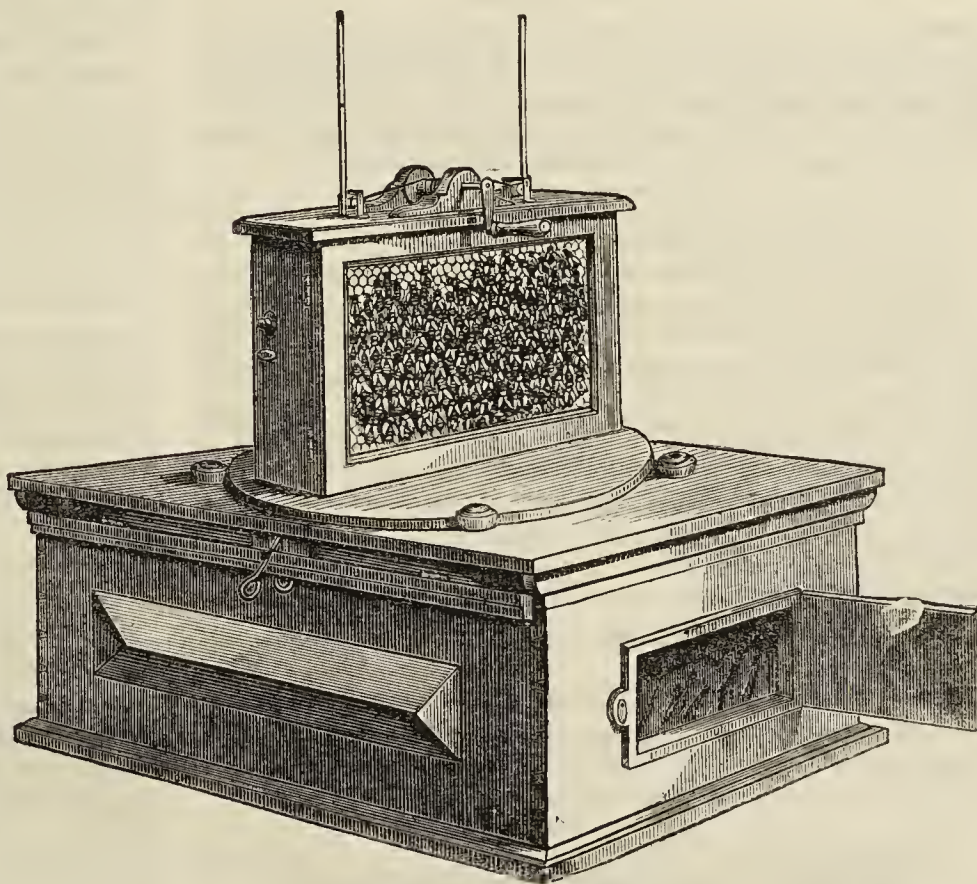


Fig. 34.—Neighbours' Prize Observatory Hive.

prize hive deserved a higher place; and Messrs. Blake, Blow, and Dines by no means obtained their deserts, as we considered the hives shown by these exhibitors to be second to none in their general utility, ease of manipulation, moderation in price, and solidity of material and workmanship. We regret that want of space forbids our entering more into detail as regards these excellent specimens of what a modern hive should be.

In Class 6, "For Frame Hives, price limited to 15s.," Messrs. Dines were *facile princeps* with their double-walled hive, affording every facility for harvesting comb honey in side sections and upper racks, their hive being remarkably cheap at 15s. Messrs. Best and Blow also well earned their position of second and third with hives of similar construction. We thought this an excellent class, there being twenty-one entries all of superior workmanship; indeed, for such hives a few years ago we must have paid from 30s. to £2 each, so good a work has the Bristol Association effected in the supply of really good hives at moderate prices during the few years of its existence. Mr. Blake obtained here a commendation, and several others might well have shared his good fortune, especially Messrs. Neighbour, Baldwin, and Green, the latter for a hive on the doubling principle for obtain-

ing extracted honey. It is a remarkable fact, especially worthy of notice, that in all the moveable-frame hive classes, the British standard frame, although established barely six months, appeared to be almost invariably adopted. Class 7, also, was a most superior class considering the low price of 10s. 6d. to which the exhibitors were tied down, and here again Messrs. Dines were successful, being closely pressed by Messrs. Blake and Best, Messrs. Baldwin and Abbott obtaining high commendations. Who would not invest so small a sum as 10s. 6d. in order to become possessed of a really good sound bar-frame hive for entering upon one of the most charming of all country pursuits, and, withal, a most lucrative one?

In Class 8, for amateurs, the fortune-favoured ones were Messrs. Benthall, Brooks, and Stewart, with hives which, to say the least, would have done credit to professional workmen. We particularly liked Mr. Stewart's hive, which comprised all the useful principles that we expect to find in a modern hive. With Class 9, "For the best Straw Hive for depriving purposes, price limited to 5s.," we come to the last of the hive classes. That there should be found in a straw skep class seven entries, whilst in former years one, two, or at most three have been the maximum, speaks well for the rapid strides now being made in apiculture. We must confess to a lingering fondness for the hive of our forefathers, and if, in this age of change, modern ideas can be united with and engrafted upon the old dome-shaped straw hive, why not? We should have here placed first the Messrs. Abbott's highly commended Pettigrew Stewarton Hive, as being about the best and soundest straw hive we ever saw, being extremely well wrought with strong oaken hoops at top and bottom, the diameter of the latter being slightly smaller, contracting the skep at bottom to prevent the falling of combs, on the old Grecian hive principle—a most excellent one; its arrangement also for procuring straight combs leaves little to be desired. To most of the specimens shown the modern sections, either were, or might easily be, adapted.

The conclusion of this report will appear in our next issue.

PRESTON APIARIAN SHOW.—We are informed that entries are wanted for the Great Bee Show to be held at Preston, September 6th, 7th, and 8th. For honey, three silver and three bronze medals, three certificates and money prizes to the value of £15, are provided. For driving, first prize 50s.; second, 20s.; and third, 10s. Apply to the Hon. Sec., J. P. Jackson, Esq., 31, Jermyn Street, Liverpool.

TRADE CATALOGUES RECEIVED.

Hogg & Robertson, 22, Mary Street, Dublin.—*Catalogue of Hyacinths and other Flowering Bulbs.*

James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Bulbous Plants.*

John Laing & Co., Forest Hill, London.—*Catalogue of Bulbs, Roses, Fruit Trees, and Vines.*

James Yates, Underbank, Stockport.—*Catalogue of Vegetable and Flower Seeds, Gladioli, &c.*

Sutton & Sons, Reading.—*Illustrated Bulb Catalogue.*

Robert Veitch & Sons, Exeter.—*Catalogue of Bulbs and other Flower Roots.*

Dickson, Brown, & Tait, Corporation Street, Manchester.—*Catalogue of Dutch and French Bulbs.*

George Bunyard & Co., Maidstone.—*Catalogue of Roses, Hyacinths, and other Bulbs.*

Stephen Brown, Weston-super-Mare.—*Catalogue of Bulbs and Spring Flowering Plants.*

John Cattell, Westerham, Kent.—*Catalogue of Bulbs, Vines, Strawberries, &c.*

E. Webb & Sons, Wordsley, Stourbridge.—*Catalogue of Bulbs (Illustrated).*

E. Wilson Serpell, Plymouth.—*Catalogue of Bulbs.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Onions Failing (J. G.).—You had better sow again at once, taking care that you sow good seed this time; but in all probability the "sort that has

come up well" will afford sufficient plants, which if carefully transplanted in good soil will enable you to meet the demand for early Onions next summer. We have had the finest of crops by transplanting 4 inches apart in rows a foot asunder.

Beetles v. Strawberries (J. C.).—We are greatly obliged by your communications on this subject and the specimens you have sent; these shall be carefully examined and referred to with the publication of your letter.

Insects on Carnations (E. C.).—The flowers which you sent to us were seriously infested with the small black thrips, *T. cerealium*. They are very prevalent in some districts during the harvest period, and may be found in large numbers on Wheat, Rye, Grass, in fact on nearly all the cereals, also on Peas. It is not easy to prevent them attacking Carnations without more or less depriving the flowers of their beauty or perfume. Forcible and frequent syringings with pure water is a safe application and not ineffectual. A little paraffin mixed in the water, or a solution of quassia chips, would also be useful in extirpating the insects.

Mackaya bella (Idem).—The principal object is to ensure the thorough ripening of the wood, which may be effected by placing the plant in a light position in the cool part of the stove, or in an intermediate house. It will only be necessary to cut out the weak growths, also removing any that are too crowded.

Peaches and Nectarines for Succession—Late Grapes (Subscriber).—The following will give a good supply of fruit over a very long period—Alexander, Hale's Early, Rivers' Early York, Early Grosse Mignonne, Old Grosse Mignonne, Royal George, and Bellegarde. A good later variety is Desse Tardive. We presume you intend growing them under glass, but you do not say so. If you require Nectarines, Lord Napier, Pine Apple, and Victoria are very good. You do not say how many varieties of Grapes you want, nor whether you require white as well as black varieties. The best and most useful decidedly late Grapes are Black Alicante, Mrs. Pince's Muscat, Alnwick Seedling, and Lady Downe's.

Grapes Splitting (Wanderer).—The Grapes sent in a flat round tin had been so shaken in transit through not having been firmly packed, as to arrive almost shapeless. The variety we think is Bidwill's Seedling, but we cannot be certain from an examination of such imperfect specimens. It is a very thin-skinned Grape and not worth growing. Probably if the Vine had been more heavily cropped the berries would not have split to the extent they have done. We should certainly not keep the Vine, as the space it occupies could be much more satisfactorily filled with a Black Hamburgh or other approved variety. The inferior character of the fruit is not your fault, but the fault of the variety.

Split Oak Fencing (Twelve-years Subscriber).—The best information we are able to afford on this matter is from a table in the "Gardeners' Year Book," under the head of "Fencing" on page 46. We find the price for 4 feet cleft oak pales, with two arris rails and oak posts 5 feet apart, fixed complete, per rod 37s.; pales 6 feet high with three arris rails, 55s. If a 1½-inch oak plank a foot wide is placed along the bottom, add 10s. This estimate is for the best material, and for fences such as are erected on gentlemen's estates in the country. We are informed that builders near London put up split oak fences 6 feet high at a cost of £1 per length of 3 yards, but we know nothing of their substance nor the materials that are used. You cannot do better than state your wants to a few of the principal builders in your neighbourhood, and ask them to furnish you with estimates for completing the work.

Propagating Lapagerias (F. C.).—Only a skilled propagator can strike cuttings of these plants. They are increased by layers, a shoot being laid on a bed of peat and pegged down at the joints, only half the leaf that is attached to each being visible above the soil. They must remain there a year, the bed being kept in a regular state of moisture the whole of the time. The plants grow freely in spongy peat and charcoal, the pots or beds being drained efficiently so that copious supplies of water can be given without making the soil sour. A cool greenhouse is suitable, and if not exposed to the full sun the plants appear to grow the more freely. We have seen them very fine on a north aspect.

Viscaria cardinalis (H. M.).—The above is the name of the annual of which you have sent flowers, and you ask if plants would "look well in a greenhouse?" Yes, if you can grow them as well as they grow in an open border; but you can scarcely do this in the summer, as the growths speedily become drawn and weak when the plants are placed in a warm house. We have had most attractive pots of Viscarias in the greenhouse by the following simple method of culture:—Sow the seed now in a shallow drill in an open position in the garden, and cover it lightly with fine soil. As soon as the seedlings can be handled thin them out, so that each plant stands separately an inch from the others. This thinning is important and cannot be done too soon. The plants so prepared will endure the winter safely, and when they fairly commence growing in the spring three can be placed in a 6-inch pot, using rich soil. Place the pots close to the glass in a very light frame, just protecting the plants from frost, and ventilate freely on every favourable opportunity, removing the lights during fine days in April, as the object must be to ensure steady and sturdy growth. Water the plants carefully at first, and copiously when the pots are filled with roots, giving liquid manure twice a week. By pursuing that treatment we have had beautiful masses of flowers in May, and the plants were much admired in the greenhouse. They must be kept in a frame until the flowers commence expanding. If you sow more than one row of seed the rows must be a foot apart.

Abutilon Thompsoni (P. D.).—This is an evergreen shrub with golden variegated or marbled leaves. Keep the plants rather dry and cool during the winter, prune in February rather closely, and continue rather dry up to March, when they may be watered more freely. When the young shoots are an inch long turn the plants out of the pot, remove most of the old soil from the roots, which may be trimmed a little, and repot in a size of pot that will hold the roots conveniently. Water carefully, but sprinkle the foliage with water twice daily, shading from bright sun until the plants have recovered, then afford a light and airy position, watering freely and shift into larger pots when good roots have been formed. A pot 2 inches larger in diameter may be given in April, and another shift in June. Stopping the shoots may be practised up to July, so as to induce the required habit of growth—bush or pyramid—tying out or down, and if this be done judiciously the plant will be ornamental to the end of the season. The foliage must not be allowed to flag for want of water during growth, whilst if the soil be made sodden it will not thrive. It is fine for covering walls and training to pillars in conservatories, also for flower borders. Sandy fibrous loam three parts, peat and leaf soil half a part each, with a free admixture of sand and pieces of charcoal. Cuttings of young shoots moderately firm strike freely in sandy soil in gentle heat.

Vines Unsatisfactory (F. J.).—The box arrived, but the lid and Grapes

appear to have been lost in transit. There was one leaf in the box much scorched, and this indicates that the ventilation has been defective. If the house is exposed to the early morning sun, and is not opened before nine o'clock, that would during hot weather account for the scorching and the unsatisfactory condition of the Vine. On bright mornings the top lights ought to be opened slightly two or three hours sooner. Possibly, too, you have not given sufficient water. Dig into the border to a depth of 2 feet, and if the soil is in the slightest degree dry give a heavy watering at once. The laterals should be thinly disposed so that the leaves of one do not overlap those of the other, and they should be stopped as frequently as is needed so as to secure the full exposure of the leaves to the sun. By adopting this practice, ventilating early and watering sufficiently with liquid manure if needed, the Vine, assuming that it makes fairly good growth, ought to bear useful Grapes. When the roof of a house is covered Vines on back walls seldom bear well. The Black Hamburgh foliage is very unsatisfactory, small, thin, and affected with mildew. Syringe with a solution of soft soap, and dust the leaves with sulphur. We feel convinced there has been some error in ventilation, if not in other points of management. Have you not a good practical gardener and successful Grape-grower near you who would inspect the Vines and give you advice thereon? If this course is practicable we think it advisable.

Forcing Roses in Pots (*A Constant Reader*).—You do not say whether you prefer Tea or Hybrid Perpetual Roses, but as you require them about Christmas you will have to rely upon Tea varieties for producing blooms at that season of the year. During winter "good blooms" cannot well be produced, but beautiful delicate buds may be had in quantity by growing such kinds as Safrano, Isabella Sprunt, and Duc de Magenta, which are only good in the bud at any season. The first two are decidedly the best for early flowering, and the first has the good character of unfolding its buds if cut in a very small state when placed in water. Niphetos, Catherine Mermet, and Rubens will form a good succession to the above, and flower profusely during the month of February. The best Hybrid Perpetuals are La France, Comtesse d'Oxford, Anna Alexieff, Jules Margottin, Alfred Colomb, Victor Verdier, Seneur Vaise, Madame Lacharme, Magna Charta, Duke of Edinburgh, and Général Jacqueminot. The first three can be had in flower by the end of January, and the following three if started a little later will form a good succession; the remainder will bloom well any time during the month of March or April. The best way for you would be to obtain plants ready established in pots which are prepared in quantity, both Tea and Hybrid Perpetual varieties, by the majority of well-known nurserymen. These plants are not prepared and ripened sufficiently early to produce flowers at the time you want them. The Tea kinds might be obtained to produce flowers at Christmas if you obtain them at once and then keep them slowly growing, and to achieve real success they should be grown earlier each year and rested, when they will in a very short time flower almost naturally at the time you want the first batch to bloom. You will find a good practical article on producing Roses at Christmas in the Journal for December 25th, 1879.

Wiring a Vinery (*P. H. P.*).—We prefer having the wires stretched from end to end, parallel with the front and back plates. Galvanized wire will be safe provided it is well painted. In some districts it is injurious when not painted. The size of the wires is not material, this depending on the number of small rods that are screwed into the rafters or sashbars, the rods having eyes at the end for supporting the wires. In the large vinery at Longleat, where neither the Vines nor bunches are pigmies, the wire is not much thicker than a stout knitting needle, and the lines are 10 inches apart. They should be 18 inches from the glass if the height of the house permits; many Vines are injured by the foliage crushing against the roof. It is quite immaterial whether you plant five or six Vines; there is room for six, and the shade which they cast on plants does not depend so much on the number of the rods as on the laterals that proceed from them. If you have six Vines and the laterals are not nearer than 2 feet apart, you will, with good culture, obtain fine Grapes, while many kinds of plants will succeed in the house as well. The question of securing light for the plants is simply one of thinning and stopping the laterals.

Furnishing Orchard House (*I. E.*).—We can now quite understand your proposed arrangement, the plan making it quite clear. We have observed that owners of orchard houses have distinct objects in view. One cultivator requires the greatest bulk of good fruit, produced in the easiest manner regardless of the form in which the trees are trained, and of the varieties, provided what he has are good; the other finds much pleasure in testing varieties and systems, hoping also to obtain good crops. This is, as your plan suggests, the class of cultivators to which you belong. From that point of view your proposed method of furnishing the house is good, and we think it can be carried out successfully subject to one condition—namely, removing the trees, or some of them, in pots to a sheltered position in the open air to mature their fruit after it is set and the weather has become favourable. To leave all the trees in the house throughout the season would sooner or later result in overcrowding, and both the trees in pots and those planted out would sustain injury. The plan we have suggested of removing the trees in pots and plunging them in a warm position in the open air is practised with great success by Mr. Rivers at Sawbridgeworth, and he finds the plan in every respect satisfactory. The trellises across the back border, which we presume will be taken up to the roof, will shade the wall considerably; and instead of planting two trees at A, A, in your plan, we should prefer one placed in the centre of the space between the trellises to be trained as vertical cordons; you would thus have room for five trees exactly opposite the five trees in pots next the walk. These trees as they become large would undoubtedly shade the wall unduly, but we should prevent this by placing the trees outside in June, or when it would be safe and proper to do so, and by this plan you would insure a longer succession of fruit than if the trees remained in the house. For carrying out this plan successfully it is essential that the trees be not started into growth early in the spring.

Compost for Vine Border (*Amateur*).—We cannot do better than quote the reply to a correspondent last year who asked for a recipe for a first-class Vine border:—"As you require to know how to make a 'first-class Vine border,' we will state how the Vine borders at Arkleton were made, and append the results achieved by Mr. Dickson, the late gardener there. In the first place the borders rest on several feet of gravel, so that the important condition of perfect drainage is provided by Nature. The inside border is 14½ feet wide and 3½ feet deep; the outside border is of the same width and the same depth in front, and 2½ feet deep at the edge next the walk. The Vines are planted inside, and have free access to the outside border. The components of the soil are fibry loam of medium texture taken from an old sheep pasture, and to every twelve cartloads of turf were added two cartloads of old lime rubbish, one cartload of horse droppings, one cartload of charcoal, and 5 cwt. of inch bones. The turf was fresh from the field, mixed well with the other ingredients, and wheeled into the border without lying exposed. That may be taken as a first-rate recipe for a Vine border, judged at least by the following results, which are

certainly 'first-class.' In the year 1869, at the Edinburgh International Exhibition, the first prize was awarded to Mr. Dickson for a bunch weighing 16½ lbs.; in 1870 the first-prize bunch at the Royal Caledonian Society's Show weighed 19 lbs. 5 ozs.; in 1871 the first-prize bunch at the same Society's Show weighed 18 lbs. 7 ozs.; in 1872 the first-prize bunch at Glasgow weighed 19½ lbs. 6 ozs.; in 1873 at Manchester the prize bunch weighed 16 lbs. 1 oz.; and in the same year another bunch at Glasgow weighed 16 lbs. 10 ozs.; then came the bunch produced in 1875, weighing (by the Judges) 25 lbs. 15 ozs. We do not advise you to make the border its full width now. A width of 4 feet will probably be sufficient the first year, the front being supported with a wall of turf. If the soil is in the right condition as to moisture—that is, moderately moist but not wet—you may press it down slightly as it is placed in position, and it will not afterwards settle to do any harm. Making a border is only one element in Grape culture. If you would like fuller particulars of Mr. Dickson's practice you will find them recorded in Nos. 757 and 758 of the Journal, the issues of September 30th and October 7th, 1875. If you do not possess these numbers they can be had from the publisher, price 3½d. each." The most useful variety of Grape for an amateur is the Black Hamburgh, a Vine or two of Foster's Seedling being added if white Grapes are needed. The best time for you to plant Vines will be in the spring when growth is commencing; but the Vines should be had in pots this autumn, and be kept very cool during the winter. If the pots are plunged in leaves or ashes in a shed they will be quite safe.

Potting Lilliums (*H. Jones*).—Pot them immediately after the flower stalks become yellow, and instead of taking the bulbs quite out of the soil, turn the plants out with the ball entire. Remove the surface soil down to the crown of the roots, and cut the stalk or stems off at that point. Next remove the drainage and any soil that comes away easily. Clean the pot inside and replace the drainage with an inch of the rougher parts of the compost over it, work the soil carefully around the roots, and cover the crowns about an inch deep. The pot should be about three parts full, the remaining space being filled afterwards. We use a compost of two-thirds turfy loam a year old from decayed turves cut 3 inches thick, and one-third leaf soil or turfy peat, with a free admixture of sand.

Names of Fruits (*M. C. B.*).—The Peaches are not ripe. If the tree has small flowers the variety is Royal George; if large flowers, Early York. (*J. P. H.*).—The Apple is in all probability a seedling, and, although it may be useful and hear well in your district, has no commercial value. (*W. Watson*).—We seldom received fruits in a worse state by inefficient packing. The Apricot is possibly Brussels, the Nectarine is bruised beyond recognition.

Names of Plants (*C. S. D.*).—No. 1 is *Hypericum Androsaemum*. Its common name is Tutsan, which is thus quaintly explained by Gerard—"The leaves laid upon broken shins and scabbed legs heal them, and many other hurts and griefs, whereof it took its name Tout-sain or Tutsane—healing all things." The Welsh call it the "Blessed Groundsel" in reference to its reputed curative properties. No. 2 is *Potentilla argentea*, and No. 3 *Impatiens Balsamina*. (*Preston*).—The greenhouse plant is *Diplacus glutinosus*; the Orchid is *Maxillaria picta*. (*K. C.*).—We have many times stated that it is impossible for us to undertake to name varieties of florists' flowers, such as Zonal Pelargoniums. There are far too many so closely resembling each other, that the only satisfactory mode of determining the names of varieties is to compare them with those in a large collection. Florists from whom plants are purchased are usually able to supply the names of good specimens that are sent to them. All the petals had fallen from the trusses you sent to us; a little clear gum applied to the centre of each flower would have prevented this. The herbaceous plant is *Lychnis coronaria*. (*A. R.*).—1 and 2 are varieties of *Selaginella Martensii*; 3 is a *Begonia*, but, as we have repeatedly stated, we do not undertake to name varieties of the fine-foliage section. All *Selaginellas* are included in the order *Lycopodiaceae*, and are correctly termed Lycopods, but not Lycopodiums. (*F. S.*).—*Achillea serrata* (Goose-tongue), an old garden plant now nearly lost, formerly grown in every cottage garden. (*H. J. G.*).—1, *Agrostis alba*, White Bent Grass; 3 and 4, *Agrostis canina*, Dog's Bent Grass; 5, *Festuca duriuscula*, Common Fescue Grass; 6, *Trisetum flavescens*, Yellowish Oat Grass; 7, *Glyceria fluitans*, Floating Meadow Grass; 8, probably an *Arundo*, a miserable scrap; 9, *Festuca pratensis*, Meadow Fescue Grass. If you send again we must ask you to submit better specimens. The others were not in a condition to be named, even if you had not exceeded the regulation number. (*F. L. P.*).—1 is *Phygelius capensis*, a native of South Africa, having been discovered in Caffreland about thirty years ago. It is included in the order *Scrophulariaceae*; 2, *Plumbago Larpenae*, also known as *Valoradia plumbaginoides*, a Chinese plant. (*M. H. S.*).—*Scabiosa caucasica*.

COVENT GARDEN MARKET.—AUGUST 30TH.

TRADE remains quiet, without any practical alteration in supplies or prices.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	3	0	to 7	0	Lemons.....	each	20	0	to 30	0
Apricots.....	doz.	1	0	1	6	Melons.....	each	2	0	4	0
Cherries.....	½ sieve	0	0	0	0	Nectarines.....	dozen	2	0	10	0
Chestnuts.....	bushel	0	0	0	0	Oranges.....	100	6	0	10	0
Currants, Black..	½ sieve	0	0	0	0	Peaches.....	dozen	2	0	10	0
„ Red....	½ sieve	0	0	0	0	Pears, kitchen ..	dozen	0	0	0	0
Figs.....	dozen	4	0	0	0	dessert.....	dozen	1	0	2	0
Filberts.....	lb.	0	6	0	0	Pine Apples, English	lb.	3	0	4	0
Cobs.....	100 lb.	50	0	0	0	Raspberries.....	lb.	0	0	0	0
Gooseberries....	½ sieve	0	0	0	0	Strawberries....	lb.	0	0	0	0
Grapes.....	lb.	1	0	4	0						

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4	0	0	Lettuces	score	1	0 to 1	6	0
Asparagus.....	bundle	0	0	0	0	Mushrooms.....	punnet	1	0	1	6
Beans, Kidney....	100	1	0	0	0	Mustard & Cress ..	punnet	0	2	0	3
Beet, Red.....	dozen	1	0	2	0	Onions.....	bch.	0	6	0	0
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	3	0	4	0
Brussels Sprouts..	½ sieve	0	0	0	0	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Peas.....	quart	6	10	0	0
Capsicums.....	100	1	6	2	0	Potatoes.....	cwt.	6	0	7	0
Carrots.....	bunch	0	4	0	6	Kidney.....	cwt.	6	0	8	0
Caniflowers.....	dozen	2	0	3	0	Radishes....	doz. bunches	1	0	0	6
Celery.....	bundle	1	6	2	0	Rhubarb.....	bundle	0	4	0	6
Coleworts....	doz. bunches	2	0	4	0	Salsafy.....	bundle	1	0	0	0
Cucumbers.....	each	0	4	0	6	Scorzonera.....	bundle	1	6	0	0
Endive.....	dozen	1	0	2	0	Seakale.....	basket	0	0	0	0
Fennel.....	bunch	0	3	0	0	Shallots.....	lb.	0	3	0	4
Garlic.....	lb.	0	6	0	0	Spinaeh.....	bushel	3	0	0	0
Herbs.....	bunch	0	2	0	0	Tomatoes.....	lb.	0	2	0	0
Leeks.....	bunch	0	3	0	4	Turnips.....	bunch	0	6	0	0



POULTRY AND PIGEON CHRONICLE.

BREEDING HUNTERS AND ROADSTERS.

(Continued from page 189.)

It is no doubt true that breeding hunters and fast horses for profit can be best done on good grazing land; the home farmer must therefore, before commencing to breed horses for pace, consider the nature of the soil whereon they are to be reared, in order that the animals' health and beneficial growth may be assured as far as the soil can influence it. It is well known that sheep and cattle bred upon wet undrained land suffer from defects in their constitutions, having frequently diseased livers, defective feet, and that many animals, although well bred, often meet a premature death. Horse-breeding may therefore under similar circumstances be attended with many risks, which should be kept steadily in view. It should therefore be carried out upon land having a dry subsoil; the surface, moreover, should be fertile, abounding in carbonate and phosphate of lime. Upon this subsoil and this surface we have a right to expect full-sized healthy animals if they have been bred from sound parents. A very hot and dry surface with gravelly or sandy subsoil is not desirable, for these often produce animals with narrow contracted feet—a most serious defect in hunters, and roadsters especially. These observations, however, are more particularly applicable to stock reared entirely on pasture land after a certain age. Capital horses are, however, reared chiefly upon food supplied in their sheds and racks, having only for the purpose of exercise a paddock of good size and well fenced in connection. In this way the advantages are great and the risks less, for young animals so brought up are more docile and more easily broken in, and at the same time more free from accidental blemishes. We have frequently seen well-bred horses when allowed their range in pasture districts disfigured by blemishes, which in some cases may not injure their working powers, yet are sure to diminish their selling price.

Breeding horses, which is constantly resorted to by farmers, sporting men, and amateurs, all of whom have evidence to show that they can produce certain desirable qualities in the offspring which neither of the parents possessed. The mule may be referred to as an illustration on this point; for here we find the produce much superior in size, power, and action to the ass, whilst its powers of endurance under exposure to weather and privations exceed those of the class to which his dam belonged. This illustration is often taken as a defence for promiscuous intercourse, but the thoughtful business man will not be deceived, and still resort to his old and safe guide that "like begets like." Nor can mating the entire horse with the mare be carried out with success, as is frequently done in cattle-breeding—namely, to mate them so that the good points in one animal should cure the defects of the other in the offspring. But let it be borne in mind that in the case of horses, where perfection is the object to be attained, that both male and female in themselves should be as perfect as it is possible to obtain them.

The really good half-bred stallion—such as we used to meet with, with his large clean legs, well-defined knee, hock, and postern joints, with good head, shoulders, barrel, and hind quarters—is now become scarce. These horses when about 16 hands high formed a connecting link between the thorough-bred and the stronger classes; from such sires mares fit to breed hunters used

to be obtained, besides many of the most valuable horses in England for general purposes: but of late years, whenever such a stallion has appeared it has only been to be favoured with a few mares preparatory to his being exhibited, and then sold to go abroad. To find a really good half-bred stallion of this old stamp at five years old has been a rare occurrence during the past twenty years or more, even in the chief horse-breeding districts, such as Yorkshire, Shropshire, and Norfolk. Mares also of the stamp for producing hunters are at present very scarce, as may be inferred from the small number presented at exhibitions of general stock; yet with our climate, soil, and national resources the few good animals still obtainable for breeding would suffice for laying a foundation if we had a stud-book to encourage the production and recording stock of the right sort.

This scarcity of both stallions and mares is not likely to be altered unless we resort to the practice of former times, when Royal plates of £100 each were given for competition all over England for four-year-old horses carrying 10 stone 4 lbs.; five years old, 11 stone 6 lbs.; six, and aged, 12 stone, and decided in four-mile heats. The prizes then were a great inducement to breeders to rear animals of size and substance, and to keep them when obtained. As long as these Royal plates were given to horses carrying these high weights, strong thorough-bred horses were bred and kept, which, however, in the end broke down, and became the most valuable acquisition to breeders of horses in all parts of the country. Having become blemished they were no longer coveted by foreigners, and remained at home for the rest of their lives, helping to produce a race of horses with size, substance, blood, and action. On the rules and regulations of the Jockey Club will depend the extent to which good stallions in the future can be obtained. If two-years-old engagements were carried over to the third year, and indeed to the fourth year, the character of the blood horse would at once greatly improve. Again, modern steeple-chasing has drawn heavily on the supply of blood horses, adapted for country stallions. That sport, which formerly was intended to be a test for good riders across country, and also of the clever hunter, has to a great extent been the means of calling out the indifferent race horse to beat the horse really fit to be ridden to hounds, and therefore many good powerful blood horses have been converted into geldings which would have been extremely useful as stallions.

The eye is the best guide in estimating correct forms of the horse. Like the sculptor and painter, we cannot proceed far by measurement, although, like the artists, we can run our rule over one or two points, and then take in the details with the eye, commencing, however, with the feet, for the old saying is "No foot no horse," and then proceed to estimate the general outline and shape as adapted for our purpose. In Mr. Gamgee's essay it is stated—"When horses like Little Wonder and Daniel O'Rourke, that were sensibly under 15 hands high, are seen to outrun horses of 16 hands for the Derby, it is generally thought that the little horse has gained over the larger through his quicker movements, that more strides must be taken in one case than the other; or else that the lower horse keeps up the pace the longest, as is really the case, the larger horse being the weaker. But as regards the length of stride, the notion of the little horse having the shorter is very probably wrong, and when he has beaten the larger animal it generally is by his length of stride, and the same construction which gives that faculty confers the power to keep it up."

We must again refer to the giving of prizes, for we remember when a prize of £100 was given by the Royal Agricultural Society at Battersea, the best stallions were entered from all parts of the country; a Derby winner was entered to whom was awarded the prize. The object of the Society, however, was not obtained. It is not a winner of the Derby or St. Leger—a horse that will never be taken from his own stable door—that should come to an agricultural show, exhibit himself there, and walk off with the prize; but what is required is a good, strong, thoroughbred country stallion that is available for the use of the ordinary mares of the country. This prize did, it must be remembered, indicate a great fact, a hint suggestive of what may be done by the £100 prizes or Royal Plates being revived towards restoring our losses and bringing us back again to our original position. It has gone far to illustrate the great principle that such rewards are highly esteemed by the owners of valuable horses, and will induce them to keep and show them for such prizes, and it should be one of the conditions that such prizetaker should be available for mares at a moderate charge in his own district, for there surely is great need of them.

The country is so ill supplied with thoroughbred horses of the required stamp and type, that it is almost impossible to find a useful short-legged thoroughbred horse that can carry 12 stone across the country. This is a great loss, for with substance there

is no substitute for blood; there is no elegant carriage horse without it, no quick-stepping hack without it, and no fast-enduring hunter without a large portion of it. Our cavalry must feel this loss very much, for it ought not to be overlooked that blood gives pace, and that pace is power. In conclusion, we assert the remedy is in our own hands. Let Her Majesty's plates of £100 be re-established for high weights and long distances, let the princes of the realm throw their influence into the scale, and the nation would soon respond to the example. It is a national subject, and worthy of all the patronage which can be bestowed upon it. The agricultural societies of the United Kingdom should follow on with the Royal Agricultural Society, and call for weight-carrying thoroughbred stallions. We may thus recover what we have lost, and again obtain a sufficient supply of the description of horses so needful for doing good service throughout the country. We cannot conclude entirely without stating that for some of the ideas and plans suggested we are indebted, not only to J. Gamgee, sen., of the New Veterinary College, Edinburgh, but also to the Right Hon. John Evelyn Denison, both of whose essays in the Journal of the Royal Agricultural Society for the year 1863 will be found well worth perusal.

WORK ON THE HOME FARM.

Horse Labour.—In all cases where the Wheat stubbles are foul with couch the land should be autumn-fallowed; but the manner of doing the necessary tillage is important. Some farmers are never satisfied unless they plough the land deep the first time. Now in our experience this is wrong, for if the couch and black bent grasses are buried deeply it, as it were, doubles the work of cultivating to bring them to the surface again. In fact, they are not entirely brought up again, but the grass roots are divided and left in the land after much work has been expended. We have, therefore, always in commencing the work of autumn-fallowing, if done by steam power, cultivated long ways and cross ways, with the cultivating tines on, to the depth of the previous ploughings, and then comb out the lumps of couch, &c., with Howard's self-lifting drag harrow; we know of no other drag worth using in comparison with it for such a purpose. In case the work of autumn-fallowing is intended to be done by horse labour only we advise the raftering or half-ploughing, and after this turn the raftered furrows back again by what is commonly called back-stretching. This moves the whole of the surface; but it should not be raftered too deeply. After a drying day or two the land will work freely, and should be dragged across first, and then twice more, reversing the direction of the first work by transversing the direction of the dragging, which will then, if the weather has been favourable, have reduced the fallowed surface into a condition ready for the use of the roller and harrows. Much extra horse labour may, however, be saved by carting the couch away, although some earth may still be attached to it without continuing the tillage labour to reduce the grass into a state to burn, and which in the event of rainy weather succeeding cannot be done. After couch has been carted away to heap to rot or laid at once on to pasture land the fallow may remain until after Wheat-sowing has been completed; it may then be deeply fallow-ploughed to lie during the winter.

It is now time to arrange the acreage for green crops required now to be sown with seeds of Trifolium, Winter Vetches, Rye, and Winter Barley. These, however, should be sown on land quite free from couch. Previous, however, to seeding for the green fodder crops stubble Turnips should have been drilled with artificial manures upon land intended for Mangolds next year, so that they may be fed off by sheep or reduced by grinding and ploughed in as manure, which plan will wonderfully forward the tillage for Mangolds, and manure it also to a certain extent. We will suppose also that Mustard seed has been previously sown on the fallow break upon land coming in for Wheat, in order that the green crop of Mustard may be ploughed in before sowing the Wheat at about the middle of the month of October. In seeding for Trifolium, if a succession of spring and summer fodder is required, three sorts should be sown. The quantity of seed should be 25 lbs. per acre, especially as this year the seed is cheap. For earliest growth we like the early crimson variety; second early, the pink blossom sort; and for the latest use as green fodder up to a week or ten days in July we prefer the perfect white-blossomed variety as being the latest for green food we have ever grown. Too much seed cannot often be sown, for it has many enemies, especially the small white slugs, for we have known the first and second seeding carried away by them after seeding with 20 lbs. and 25 lbs. per acre respectively, and we have afterwards succeeded by sowing 30 lbs. per acre as late as November 13th. In sowing Rye we like the Giant or St. John's Day sort, and when it is saved for seed the bulk of grain will be greater than the ordinary variety, and the straw, which is very long and strong, is very much more valuable than that of any other cereal. Winter Vetches, too, may be sown so as to secure a succession, because the early sort, which is a small grain as compared with the ordinary variety, comes in for feeding a fortnight earlier—a matter of importance in some seasons both for cutting up as green fodder either for horses or cattle as well as for folding off by sheep.

Hand Labour.—Men will now be employed in hoeing the late Turnips. The women will be employed in forking out couch where there is but little either in the stubbles, or anywhere else in fact;

for a few shillings per acre spent in this way not only saves much horse labour, but it frequently forwards the seed time in the spring, also for the various crops; besides which, forking out couch can be done in any weather, whereas working it out by horse labour can only be done in favourable weather. Some men will now be employed filling manure cart from the yards and cattle boxes to be laid out and spread immediately on the lea ground intended for Wheat, and to be ploughed in as soon as possible, in order that the Wheat may be sown on a stale early-ploughed furrow.

Live Stock.—The ram sales are now nearly over of the Hampshire and Sussex Down flocks, but for the Shropshire Downs and all the long-woolled breeds the sales are on. The sales of all sorts have realised more money than those of last year, and we are pleased to find that the health of the flocks and freedom from lameness is very marked and decided as compared with many years past. The ordinary off-going flocks, either of horned Dorsets, Long-woolled, or of Down sheep, are all selling at very high prices, such as ought to make the home farmer and agriculturists in general ask themselves the question, Can they pay for fattening at such prices as they are now making? Let men of business make careful calculations as to the cost of fattening sheep or bullocks where not only hay is added to the roots for the purpose, but cake of either linseed or cotton sorts to be added also; and take notice also of the money invested, and the time before the money as regards manure obtained is returned, and the interest it gives for investment; and after having made fair calculations as to the facilities for obtaining artificial manures, ask the question whether manure cannot be bought cheaper than it can be made by cattle-feeding? We call attention to these matters because it is not only a matter of extreme importance, but of great interest to the home farmer. It also requires an intricate calculation to decide the matter without bias, and in perfect fairness as a matter of business; for why should parties blindly follow, without making such calculations as the case may require, an old traditional system of feeding stock, without reference to the peculiar circumstances by which the cases are surrounded, not only as it affects the profit on stock, but also the profit on the production of corn?

CROPS IN NORTH DURHAM.

THE fate of the fruit has long been known, but the hopes and fears of the success or otherwise of the harvest are now absorbing every man's mind, even to the exclusion of Egyptian matters. Two weeks of bright warm weather, following suddenly a two-months spell of showers, has made a wonderful change in the appearance of the country. Corn is rapidly changing its colour; and although a field or two has been cut, the harvest will not be general in this cold bleak country for a fortnight. The change has been so sudden and so marked that the farmer's especial trouble just now—and he always has one on hand—is that grain may be prematurely ripened, and the yield light consequently.

Potatoes are looking well, but from what we hear the yield will not be an average one in quantity, but quite up to, if not beyond it, in quality.

Turnips are a great success. The showery weather of late has benefited them in a most marked degree; and now that the land has got warmed by the hot sunny days of August, we may expect a more than average crop.

Mangolds are not much grown in this thin soil, and what I have seen of them are not looking at all well, though I am told that there are some excellent crops further inland, a statement which is most likely to be true, as Mangolds like the alluvial vales.

Beans are said to be the crop of the year, but not many are grown.

Hay is all harvested, and the aftermath, or "fog" as it is called here, is growing abundantly. Second crops of Clover are especially good—a great boon to the dairy farmers in this populous neighbourhood, where there is an almost continuous demand for green food.—PETER FERGUSON.

SCOTCH HARVEST PROSPECTS.—A Glasgow telegram says:—"Reports published concerning the harvest prospects in Scotland state that the hay crop is one-fourth above the average, that Turnips everywhere are a full crop, and that all kinds of grain are better in quantity and quality. Potatoes show considerable evidence of disease, which will increase if the weather is wet. It is estimated that the Scotch harvest, including Turnips, is five millions sterling better than last year."

CANADIAN AGRICULTURE.—The report of the Minister of Agriculture of Canada for the year 1881, states that the exportation of cattle through Canadian ports, principally to Great Britain, were 45,535 cattle and 62,401 sheep. A large importation of Clydesdales has been taking place, and the first-prize horse of this class at the late Reading Show has been forwarded to Canada. The export of phosphate of lime also increased from 12,000 tons in 1880 to 15,601 last

year, the value being 239,493 dols. The total emigration to Canada during the year was 47,991. The rapid extension of railways, particularly in Manitoba and the North-West, and the prosperous condition of the country generally, are also subjects of comment.

POULTRY AND PIGEONS

THE FATTENING OF POULTRY FOR THE TABLE.

WE will finish our articles on the fattening of poultry by giving a translation of a French author's directions for funnel-feeding. We have seen it practised on young Pigeons in Italy, and a very neat and rapid method of feeding it seemed, only in their case hard grain and water were given separately instead of a soft mixture as in this case.

"The third method," he says, "is funnel-feeding—i.e., the forcible administration, by means of a funnel, of farinaceous food in a liquid state. This latter method is sure in the end to prevail generally, so simple is it, so easy, and so quickly performed. The fatterer procures barleymeal, not crushed barley, for the meal must not have any husk in it, but must, on the contrary, be well sifted. This is mixed smoothly into milk and water in equal proportions. The paste must be of the consistency of clear pap just put on the fire, and there positively must not be more than half milk, for experience proves that if more is put in the fattening process stops at the end of a few days, and the bird soon dies.

"Next a funnel of white metal is got, which will hold as much as any chicken requires at a meal. The pipe of the funnel which goes into the bird's mouth is cut off diagonally; its edges are rounded back, and finished off with a little pewter mouthpiece to make it soft. A small ring is attached to the funnel just below the rim of its large end for the forefinger of the right hand. Its position is specially important, for while the head of the fowl is held in one hand, with the other the funnel must be properly inserted, which is quite easy when the ring is properly placed. The opening at the bottom of the funnel (which, as we have said, is cut off diagonally) must be turned towards the operator, and for this reason the ring must be fixed to the large end of the funnel somewhat to the right of the lower mouth as one looks upwards. Those who are well accustomed to it use the funnel without any risk, but people who are not used to it are in some danger of injuring the gullet. It is well, then, to put some indiarubber round the mouth, and so obviate all possibility of accident.

"All this is very simple, and I only dwell upon it just to explain it thoroughly, which is very important. The paste is put in a vessel, whence it can be easily taken up in a deep spoon. As soon as all is ready the bird is seized by the wings near the shoulders; its head is placed forwards between the operator's knees, so as to get tight hold of it without hurting or shifting it. It flutters a little the first time, but soon gets used to it. When it is quite quiet the right forefinger is passed into the ring, the left hand seizes the bird's head, its neck is stretched out, and its beak opened with the help of the right hand, which still holds the funnel. When the beak is properly opened they manage to keep it so an instant with the left hand alone, while the neck of the funnel is quickly put down the throat, care being taken not to hurt it. Then they take the paste and fill the funnel with it, but not to overflowing, the bird's neck all the while being stretched out. The spoon used for the paste is then replaced, and the right hand holds the bird's crop till it is perceptibly filled, which operation may be helped by the action of the hand. The crammed fowl is then replaced and another taken out.

"The quantity of paste which the funnel should hold and a chicken swallow is about one-eighth of a pint, but at the first meal not more than half that should be given, and the full amount not before the third day; after that more or less according to the bird's strength. The meals are regularly given three times in the twenty-four hours, at intervals of eight hours—viz., at six in the morning, at two in the afternoon, and at ten at night in town houses; at four in the morning, at noon, and at 8 P.M. in farm houses. To facilitate the operation of funnel-feeding, and to obviate accidents from forgetfulness or intrusion, which tire and harry the chickens, there should be a proper apparatus, according to the number to be fattened, consisting of two, three, or four coops, closely barred, and more than ten birds should not be put in each. These are put in a quiet spot, in a stable or some other place, with equable atmosphere and away from draughts. There should always be one unoccupied. When all is ready the bottom of the coops is covered with clean straw, and as the cramming is carried out each bird after being fed is put into the empty one

that the last bird had been taken from. This is continued till everyone has been changed into the next coop, and the straw is changed every day while each is momentarily vacant. The straw must be changed every day, for good feeders and those who fatten for them never allow the birds to remain on their droppings, for it imparts a disagreeable flavour to them. The progress of each bird must be watched attentively, and anyone which stands still must be killed. Only those, too, must be selected for this treatment which are in good case and health, for it would be useless to put up weak chickens, which, instead of fattening, would sicken and die. The duration of the process is from fifteen to twenty days, according to the habit and breed of the chickens; after that the birds would only go back."

These directions seem plain and practical enough, and we hope before long to give the system a trial. The rule of cleanliness is much more in accord with our own ideas than that given by our French authority with his directions for cramming with balls. —C.

COOKED MEAT FOR FOWLS.—It is too much the practice to feed raw meat to poultry, under the mistaken idea that as the worms and insects which they seize with such avidity are uncooked so should be any meat given them by their owners. But the early worm which Biddy takes in her empty crop—soft, pulpy, and crushed by the bill before it descends the gullet—is one thing, and the coarse, dry, stringy, fatless flesh thrown to them "in the rough" and the tough is quite another, even if the carcass of horse or sheep so bestowed is not still more objectionable on account of disease. True, these nearly "dry bones" may serve to while away a weary hour in the monotonous life of the poultry yard, and happily the fowls may labour under the impression that they are eating something, and so they may serve a certain purpose in the poultry world; but for real aid and comfort to the fowls, save all your refuse meat and buy in addition "liver, lights, head, and all," as the old story runs, from the shambles, and boil all together for two hours or more. Then chop finely, and mix with meal in the water in which they are boiled. This dry rich mess, showing bits of meat like the raisins in plum pudding, will be a dish fit to set before any "queen of the (poultry) harem," and she and her maids of honour will pay you for it in more than words, as your egg basket, high with pearls, will show on many a succeeding day.—(Poultry Yard.)

OUR LETTER BOX.

Love Birds (C. S.).—A change of food is acceptable to the birds and beneficial. Canary seed, millet seed, Indian corn, and oats being varied according to judgment, crushing the larger seeds if needed.

Lucerne Irregular (Dr. Mackenzie).—We have no doubt that the strips of land spoken of on which the Lucerne is of "double growth" is caused by two old banks and ditches which formerly existed and intersected each other, and that the banks were levelled and the ditches filled with the loose earth and vegetable mould. This is the cause of the deeply rooting plant like Lucerne making extra growth in the second cutting, as the roots are now working in the deep and valuable soil. We have plenty of instances on our own land which illustrates in the same way the advantages to be derived from deeply moved soil. We have thrown down many old banks, and ever since it has been done we can tell by the crops where the ditches formerly existed; nor can we by any amount of manuring obtain the same benefit that will be derived from deeply moved soil, especially in those cases where rich vegetable mould has been buried in the subsoil.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
August.			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	20	30.039	60.4	56.3	W.	60.7	71.7	48.1	107.3	44.7	0.054
Mon.	21	29.772	60.5	54.0	N.W.	60.8	69.1	53.9	123.8	49.3	—
Tues.	22	29.845	60.0	52.4	W.	60.0	66.7	49.9	114.0	45.9	0.391
Wed.	23	29.276	56.8	51.3	S.W.	59.8	65.0	54.1	119.0	44.0	—
Thurs.	24	29.623	57.9	52.5	S.W.	58.8	65.7	47.6	123.5	43.5	0.160
Friday	25	29.557	55.5	53.8	S.E.	58.2	67.3	50.8	113.7	47.2	0.135
Satnr.	26	29.556	58.7	54.8	N.W.	58.0	68.2	51.2	120.1	47.8	0.074
		29.667	58.5	53.6		59.5	67.7	50.8	117.4	46.8	0.814

REMARKS.

20th.—Cloudy day, with sprinkle of rain in afternoon; wet night.

21st.—Fine, bright, windy day.

22nd.—Fine bright morning; cloudy afternoon; wet evening and night.

23rd.—Dull at first; fine and bright during the day with high wind.

24th.—Showery and cool, bright intervals; moonlight night.

25th.—Wet cold morning; bright afternoon and evening; moonlight night.

26th.—Fine and bright, few spots of rain at times; heavy rain in evening.

Mean pressure and temperature both considerably below those of the preceding week, and the temperature a little below the average. Generally a cool and dull week with a good deal of rain.—G. J. SYMONS.



7th	TH	Manchester Cottagers' Show (two days). National Dahlia Show. [Crystal Palace. Bury St. Edmunds Autumn Show.
8th	F	
9th	S	14TH SUNDAY AFTER TRINITY.
10th	SUN	
11th	M	[11 A.M. Royal Horticultural Society, Fruit and Floral Committees at Royal Caledonian Society's International Show at Edinburgh. [Two days.
12th	TU	
13th	W	

LILIUM AURATUM IN THE OPEN BORDER.

THE cultivation of *Lilium auratum* in pots and under glass is now well understood and moderately easy; but though many hundreds of pages have been written on its cultivation in England in the open air, the conditions under which it will thrive and become permanently established are as yet imperfectly understood. For those who wish to try it in their gardens the first step is to obtain bulbs. Those grown in England from seed are to be preferred for many reasons. The chief of these is that they need be only a very short time out of the soil; besides, plants from seed generally possess especial vigour and vitality until they have attained their full growth; but the price of English bulbs from seed is generally so much higher than that of imported bulbs, and the number offered for sale in the market so much less, that most gardeners have recourse to the latter. For the last year or two the importations from Japan of *L. auratum* have been so large, and the price at which they have been sold by auction in London so low, that it has been worth while to buy, even to flower once, which, with proper treatment, most of them will do. Still, there will always be a larger per-centage of failures amongst those planted in the open ground than amongst those planted in pots and grown under glass. The plant is as hardy as a common *Crocus*, but is liable to decay if soaked with wet whilst dormant in winter. Another common cause of failure is thought to arise from imported bulbs being often dug up when in full flower and before they are ripe, and it is therefore better to obtain bulbs in January or February than to buy the earlier importations.

Having obtained bulbs, the best way to find whether they will do well in your garden is to try them in the ordinary soil, planting them with the crown about 6 inches beneath the surface, and placing some very coarse sand or fine gravel round them. My habit has been to plant at once in the open ground regardless of any consideration of weather. In January, 1880, I planted fifty bulbs when the ground was frozen to a depth of several inches, only taking care to remove all the frozen ground, and to fill up with made soil which was free from frost. These Lilies all lived and did as well as those planted at any other time. I do not approve of the plan of potting the bulbs as a temporary arrangement and planting them out in spring, because it is hardly possible to adopt it without causing some check to the growth—a matter which I am inclined to think more injurious to Lilliums than any other plants. Lilliums started into growth under cover ought not to be expected to do well unless grown under cover until they flower. If as many as 70 per cent. of those planted flower well you

may consider that the soil suits them, and hope that they may become permanently established; but if less than half of them flower, and most of those badly, you should try to find out the reason why they fail. If the subsoil is cold clay without any artificial drainage, or if the soil is shallow with red gravel underneath, or if the subsoil is saturated with water at any time of the year within 2 or 3 feet of the surface, it may be presumed that any of these causes prevent the Lilies from doing well.

A foot of drainage and 3 feet of good soil is sufficient to insure success as far as soil and drainage can do it; but for the exact composition of the soil it is difficult to give any rule. If the soil is heavy it should be lightened with coarse sand and leaf soil, until a spade may be driven into it without difficulty at any time during the driest summer. It is a commoner fault in the cultivation of *L. auratum* to have the soil too heavy and retentive than too light. If the soil is light on the surface and deep the bulbs will be encouraged to make long roots, and nothing seems more important to the welfare of these Lilies than this habit.

If the bulbs are examined at the end of the first season's growth it will be found that many of them have made no roots at all from the bottom of the bulb, but only stem roots round the base of the flower stalk and above the crown of the bulb. These roots nourish the leaves and stalk, but play no part at all in forming a new bulb for next year's flowering; the consequence is that the whole plant perishes as soon as the flowering is over. To establish the plants permanently everything should be done to encourage roots below the bulb, and not above it; rich soil should be put beneath it, and sand and poor soil above it. It is true that by rich top-dressing and surface soil you will do much to develop the flowers of the year, but if you look forward to next year you must consider how to cause a bulb for next year's flowering to be formed. Some gardeners have a theory that the imported bulbs contain the germs of two years' flowering, and that after the second year they will die; but I find that if the stem comes strong and healthy the second year the plant is likely to be permanently established. If it comes weaker than it did the first year it is likely not to appear at all afterwards.

As regards the position in the garden in which to plant *L. auratum*, we are often told that they like shade; but the more I see of them the more inclined I am to think that in the English climate it is not easy for them to have too much sun. Shelter no doubt is good, and vacant places in *Rhododendron* beds, where the young growth is sheltered from parching winds and spring frosts, are good situations to plant them; but overhanging trees, which encourage damp and cause the air to stagnate, are favourable to a disease called "spot," which destroys the flowering of these Lilies. After trying every part of my garden I find that they do best in some exposed beds with 3 feet of moderately strong soil mixed with blocks of stone, and below that a foot of drainage. There they grow not more than from 4 to 5 feet high, making from six to ten flowers on a stalk; but up to this time—namely, the end of August, at which the flowering of many is past, they are quite healthy. Still, it must be confessed that the English climate, with its summer storms of wind and rain, is not quite suited for a flower so liable to be damaged by weather as that of *L. auratum*. The petals become blotched, and broken, and stained with the brown pollen, and they seldom pass through a

season without looking as if they would like better to be under glass. Still, when circumstances favour them, they look so grand in a garden that it is worth while everywhere to give them a fair trial, especially when they may be bought at the ordinary price of a Dutch Hyacinth.—C. WOLLEY DOD.

MUSHROOMS FOR THE MILLION.

(Continued from page 170.)

SECURING THE CROPS.

WHEN Mushrooms are gathered for market it is important, especially in cold weather, that only a small portion of a bed be uncovered at once—not more than a space over which a man can conveniently reach. From this the produce should be quickly pulled and the covering material promptly replaced. If the entire side of a long bed or ridge were uncovered before commencing gathering it would be exposed so long as to cause such a loss of heat as would seriously check the succeeding crop and impair the value of the bed; while even if the weather were not cold, yet dry, there would be a loss of moisture that it is most desirable to conserve. Mushroom beds in bearing must always be moist, many being kept too dry; and it is decidedly faulty practice to expedite the escape of moisture from them, and then have to make good the loss with the aid of the watering pot, as this, to say the least, involves needless labour, while the beds are not in such a satisfactory state as they would have been had they not been permitted to become dry.

It is not unusual for 9 or 10 lbs. of Mushrooms to be secured at one gathering from the small space above indicated; and as these represent as many shillings, the work, if sometimes of a cooling nature, as it is during a period of frost and snow, is yet not disagreeable to the workman who is gathering his own crops. During mild weather in autumn and late spring it is customary, in the case of young beds, to clear off the crops twice a week. During colder weather or with older beds the produce is only collected once a week. As a rule a productive bed will yield ten gatherings, seven of them full, the first and two last lighter by comparison.

In securing the crops it is convenient, as has been previously suggested, for the workman to have two baskets, one for the cups and buttons, the other for the broilers. This separation, when the Mushrooms are first handled, results in a saving of time at the weighing table, a matter of some moment when several bushels have to be divided into pounds, arranged in punnets, and tied down separately in the shortest possible time. This is the form in which all Mushrooms are sent to market. They are packed with their stems entire just as gathered from the beds minus the soil that is drawn out with the roots, and which is shaken off as the pulling proceeds. They are snatched rapidly, and, as an inexperienced on-looker would think, roughly, from the ridges; the collector always having a knife in his hand with which, for the reason previously stated, he quickly scoops out the stumps of any of the clusters that snap off close to the surface.

RETAINING THE STEMS OF MUSHROOMS.

The retention of the whole of the stems obviously benefits the grower, as they materially increase the weight of the crop, and the practice is also advantageous to greengrocers and others who make large purchases in the market with the object of retailing the

Mushrooms to their customers. Consumers are in one sense, and that not an unimportant one, benefited, too, by the custom in question. No doubt there are readers who will be glad to know in what manner the two last-named classes can derive any advantage by purchasing what cannot be eaten, as before the Mushrooms are cooked the stalks must be cut off and thrown away—unless, indeed, they are utilised for making catsup, which is only practicable when they are collected in large quantities. The benefit arising from retaining the stems is this: Mushrooms keep sound and wholesome much longer than if the stalks were cut off. This is a distinct advantage to the retail vendor, as his goods are thereby rendered less perishable, and his liability to loss by a slow sale is materially reduced. If the vendor derives benefit by the freshness and good quality of his wares so also must the consumers, and by purchasing Mushrooms in their entirety he has them as far as is possible in possession of their full flavour; whereas if divested of their stalks a few days previous to use they are insipid if not worse, as their virtues have escaped through their wounds, incipient decay has been accelerated, their constituents have been changed, and their wholesomeness impaired. Fresh Mushrooms—true samples of the Fungus, *Agaricus campestris*—are quite safe; it is only false Mushrooms or stale Mushrooms that are questionable or dangerous.

DIFFERENT GRADES OF MUSHROOMS.

There are three distinct grades of Mushrooms in demand in the markets. These are known as Buttons,



Fig. 35.—Buttons.

Cups, and Broilers, and each is in request for different culinary purposes. "Buttons" are Mushrooms in embryo—that is to say, the cap of the pileus is united to the stalk, and the laminae or gills are not visible. It does not matter what the size of these young Mushrooms may be, whether of the dimensions of a small Cobnut or a large Walnut, if the gills are veiled they are still buttons. "Cups" are a step advanced in development. Immediately the membranous covering that unites the hood with the stem breaks, the term "buttons" is no longer applicable, and the young Mushrooms are recognised as "cups," but only retain that designation so long as they are unopened and do not show more than a ring of the laminae half an inch in diameter. When they expand fully and assume the form of an inverted tea-saucer, showing the gills clearly, they are matured for culinary purposes and become broilers; but they are not perfect for the purpose of reproduction, as spores are not distributed until the laminae have changed from a lively pink colour to a brownish black, and they should be gathered, sold, and eaten before that change occurs.

RELATIVE VALUE OF MUSHROOMS.

As there are different grades of Mushrooms so also these grades have different values. As a rule, when large Mushrooms or broilers realise 1s. per lb. the cups will sell for 1s. 3d. and the buttons for 1s. 6d. It does not follow, however, that the latter are the more profitable to the cultivator. Probably the reverse is the

case, as the enormously greater weight of the broilers more than compensates for the reduction in their value as determined by their price per pound; but even here there is a set-off, as if no buttons were gathered, but all were allowed to expand, the beds would be more quickly exhausted, and instead of yielding nine or ten crops they would probably only produce six or seven. The practice, then, of gathering all the grades is a safe one, and, as has been shown in preceding pages, is sufficiently profitable, while the market demand is met in a manner that is satisfactory all round. It is well, therefore, when securing the produce to clear all off that is readily marketable either as buttons, cups, or broilers.

The different grades of Mushrooms are represented in the annexed engravings, which also show the manner in which the produce is arranged in punnets. Fig. 35 indicates buttons; fig. 36 cups, and fig. 37 broilers.

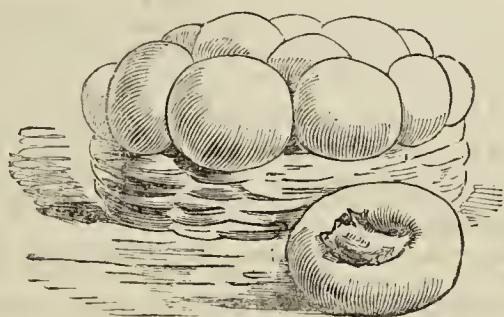


Fig. 36.—Cups.

Details of the methods of packing and preparing for sale will be given in the next and concluding paper on this subject.—J. WRIGHT.

(To be continued.)

BEETLES EATING STRAWBERRIES.

I SEND you specimens of the beetles which eat our Strawberries. The largest one of the three is, we consider, the principal offender, and up to the present year has been most numerous, but this spring No. 2 has been more often met with; in fact, we could not move a tile, heap of rubbish, or a mat without finding specimens in concealment there. No. 3 is a bright-looking active little fellow, by no means easy to catch; in fact, they are all very nimble, and they are, moreover, scarcely ever to be seen in the open by daylight. No. 1 is probably identical with "E. D's." "black bob," but it would be interesting to know if any of those I send are the same as the species which has eaten your correspondent's fruit.

A striking illustration of the love of these beetles for Strawberries was afforded us this year. The fruit from some young plants which we did not wish to bear was cut off when about three parts formed, and was left lying on the ground in a heap, becoming accidentally covered with weeds. A week or so afterwards the rubbish was cleared away, and on less than 2 feet square of ground were upwards of a hundred beetles, attracted there by the Strawberries, every one of which was more or less eaten.

I see that a correspondent speaks of weevils having been found in Strawberry beds; we have them also, but with us they do not attack the fully formed berries, but come on the plants when in flower, eating away the embryo berry. Last spring this pest threatened to become very troublesome, as, although its ravages were plainly discernible, it was scarcely ever to be seen during the daytime, but we eventually got rid of it in a rather curious manner. The frames being pulled off on mild mornings for several hours, we noticed that the sparrows made a point of visiting the plants on those occasions; and as we were well acquainted with the fact that the sparrow is as fond of insects as of grain, we did not disturb them, with the result that in a few days they cleared off the weevils. For the future we shall know what to do. We shall leave our friends the sparrows to deal with this pest. How I wish they could come at the beetles.—J. CORNHILL.

[The specimens were submitted to our entomologist, whose remarks on the subject are as follow:—

The beetles kindly forwarded by Mr. Cornhill and numbered

1 and 2 belong to the genus *Pterostichus*. No. 3 is an *Amara*—the identification of the exact species must be left for the present, as in this difficult group it could not be made without a larger number of specimens. All the three are ground beetles or *Carabidæ*, and are similar in habit. The small one belongs to a small group called "sunshiners," from their frequently showing themselves when the sun shining upon their wing-cases exhibits them to advantage, and there is an old superstition which I may mention that it is very "unlucky" to kill an *Amara*. Concerning the attack made by these species upon the Strawberry, I would remark firstly that it was a likely circumstance to arise from the greatly increased culture of this plant that we should discover it had enemies previously overlooked, or had attracted to itself new depredators. The *Carabidæ*, as a family, prey upon other insects and upon molluscous animals (snails, slugs, &c.). These latter are, as we know, constant pests in our Strawberry beds. In search of their wonted food these beetles would naturally resort to the places where this might probably be obtained; nor is there anything exceedingly unusual in a carnivorous insect devouring fruit. The instance of the wasp occurs to us at once. Partial to our fruit as the insect is, it is also a wholesale slaughterer of other insects that it can conquer. Few creatures, again, are more indefatigable in hunting their prey down than are the centipedes, yet one of these revels in a ripe Peach or Plum.

Now in dealing with such a case as this it is important to distinguish between what may be accidental or temporary and what is fixed habit. These beetles and their near relatives have been for many years reputed to be useful in gardens rather than injurious, because they kill a variety of species both in their larval and mature states. Are we as yet entitled to reverse our general opinion of them? If it were, however, considered needful to extirpate them from the garden, no method would be satisfactory, I suppose, which only dealt with the beetles. The burrowing larvæ or grubs would have to be destroyed on some one of the plans adopted in the case of the wireworm and other hard-skinned subterranean feeders.

As the subject of beetles attacking Strawberries is now under notice I may mention that *Phyllopertha horticola*, also called the June bug, Bracken clock, or by anglers "Cockerbundy" (a corruption of a Welsh name) is an old offender. In the "Magazine of Natural History" Mr. Bree writes: "Being on a visit to Staffordshire in the month of June I observed whole beds of Strawberries likely to prove nearly barren, though they had flowered copiously and the season was favourable. I was informed that the failure was owing to the 'Bracken clock,' which is accused of eating the anthers and interior parts of the blossom. In the same garden my attention was called to the ravages committed by this depredator on the Apples by gnawing holes in the young fruit, which consequently dies or falls off. I had been previously aware of the insect's partiality for the buds and blossoms of the Rose, which it greedily devours."

Mr. Cornhill gives a very graphic description of his beetle foes.



Fig. 37.—Broilers.

Miss Ormerod and some other friends of mine are much interested in this matter, and we hope to throw more light upon it soon. Upon the remark concerning the "weevils" I do not comment, feeling slightly in doubt whether we both attach the same meaning to that word, though *Otiorhynchus sulcatus* at least does infest Strawberries during some seasons.—J. R. S. C.]

ROSE MADAME GABRIEL LUIZET.—In my paper in last week's Journal I stated that I feared this fine Rose was not a Perpetual. I have just received a note from Mr. G. Mount of Harbledon near Canterbury, whose name I mentioned in it, in which he says, "I have a plant growing in my garden which has now five buds on it, grow-

ing from shoots which have already given a bloom this year." This is satisfactory, and I hope others may be able to confirm it.—D., Deal.

FRUIT-PACKING IN MOSS.

THOROUGHLY dried and well-beaten moss is no doubt a good material for packing fruit with, but we have discontinued its use on account of the fruit tasting of it when packed in it any length of time. Last year we commenced using it for packing fruit for sending to Scotland, but soon had complaints that it tasted of the moss. Being unwilling to give it up we baked the moss in a slack oven and wrapped the fruit in double tissue paper, but this did not remove the objection, which was most perceptible in Peaches and Nectarines. No doubt the length of time the fruit remains in the packing material going from Worcester to the north of Scotland has something to do with it, as when sent only short distances the flavour of the moss is not noticed.—A. BARKER, Hindlip.

I THINK the flavour complained of in the Nectarines which I sent to the Fruit Committee at South Kensington may be attributed to the fact of their being eaten immediately after being unpacked. I have known Nectarines delicious and sprightly in the morning before packing being perfectly flavourless in the evening when taken from the box in which they had remained all day. I have used moss for packing for some time; when properly dried and prepared there is no better packing material.—T. FRANCIS RIVERS.

THIS year we sent a quantity of Peaches and Nectarines to London. Each fruit was wrapped in thin paper, and then packed in moss in shallow boxes. Once we heard that the fruits had a slight mossy flavour, and on inquiry found that those who were responsible for them at the other end only took a few fruits from the box as they were wanted, some of them being allowed to remain in the moss for several days; thus it was that the moss flavour was imparted. Were the fruits unpacked immediately on their arrival and placed in a dry position the flavour would be equal to any newly gathered from the trees.—J. MUR.

HANDSWORTH SHOW.

THE nineteenth annual Exhibition of the Handsworth Horticultural Society was held on the 30th ult. Four capacious tents were erected for the exhibits and the shelter of visitors, and lucky it was the Committee were so prodigal in canvas, for from four o'clock in the afternoon till half-past six there was an almost continuous downpour of rain, though from the thousands of visitors who arrived early in the afternoon it is hoped the receipts will at least equal the expenditure.

The Exhibition was scarcely equal to some held in previous years. There was a falling-off in the gentlemen's gardeners' class, and the produce in the open class was not nearly so good as the Committee had a right to expect considering the liberal prizes offered.

Plants.—The premier prize of £10 for eight stove or greenhouse plants (open), four foliage and four flowering, was easily won by Mr. Shelley, gardener to Mrs. Hobson, Buntstones, Sheffield, with a capital group of well-grown evenly balanced plants, the most noteworthy being a grandly flowered example of *Miltonia spectabilis*. *Dipladenia Brearleyana* and the old but ever beautiful *Croton angustifolius* were also extremely fine. Groups of plants arranged for effect had a tent set apart for them. Four competitors entered the lists, none of whom displayed any originality of design, the form of the group in each case being a dwarf pyramid. The first prize of £8 was won by Mr. Keeling, gardener to David Ward, Esq., Sheffield, with a massive group. The second prize fell to Mr. Dore of Clay Cross, the chief features of his group being half-specimen *Crotons* and *Eucharis*; the edging of this group was faulty. The remaining two groups, which were scarcely less meritorious than the winning collections, were arranged respectively by Messrs. Benjamin Crossland, nurseryman; and J. Walker, gardener to B. P. Broomhead, Esq., Broomhall Park, Sheffield.

Mr. Walker took first honours in the gentlemen's gardeners' class for six stove or greenhouse plants, also for six exotic Ferns in the same class, specially noticeable being a splendid specimen *Adiantum farleyense* and *A. tenerum*. Mr. Shelley's exhibit of exotic Ferns are worthy of special mention, every plant being in the greatest luxuriance and without spot or blemish, and all nearly equal in size. The kinds were *Adiantum cuneatum*, *A. farleyense*, *A. gracillimum*, *Davallia Mooreana*, *D. bullata*, and *Pteris scaberula*. Mr. Foggin, gardener to Mrs. Wilson, Tapton, exhibited the best specimen *Fuchsias*, *Zonal Pelargoniums*, and *British Ferns*. Window plants, flowering and foliage, were fairly well represented in the cottagers' class; but their forte here as elsewhere is amongst the vegetables, the improvement in this department being very marked—a proof that flower shows have done a valuable work during the past twenty years.

Fruit.—This was fairly well exhibited in the open class. Mr. J. Ward, gardener to T. H. Oakes, Esq., Riddings House, Alfreton, carried off the first prize, £5, with a good all-round collection, consisting of splendidly coloured Bowood Muscats and good Madresfield Court Grapes, with fine Queen Pines, Peaches, and Nectarines. Mr. J. Keeling was placed second with a good collection, and he was closely followed by Mr. Webb, gardener, Kelham Hall, Newark, who had a dish of very fine Peaches in his stand.

For two bunches of black Grapes Mr. J. Simpson, Wortley Hall Gardens, was first with large compact bunches of Black Hamburgs, and well coloured medium-sized berries. Mr. Keeling was a very close second with Madresfield Court Muscat. In the class for two bunches of white Grapes Mr. Simpson was again first with not large but well-ripened examples of Muscat of Alexandria; Mr. Webb being placed second with much better bunches of the same variety, but several points behind in finish. Mr. Jefferson, Carlton House, Worksop, took first honours for two Pines with very fine specimens of Providence; Mr. Clements, Whittington Hall, Chesterfield, being second. For a dish of Peaches the prizes went in the order named to Mr. Webb and Mr. Ward; Nectarines, Messrs. Clements and Keeling; and Apricots, to Messrs. Webb and Ward. There was much room for improvement in the exhibits of fruit in the gentlemen's gardeners' class, the principal prizetakers being Messrs. Foggin, Verelst, and Pring. Vegetables were well shown by Messrs. Walker, Foggin, Penistan, and Crossland.

Cut Flowers.—These were well represented in the open class, the Hollyhocks being exceptionally good, the first prize for twenty-four being won by Mr. Boston of Bedale with a splendid stand. The same exhibitor was also first with twenty-four Dahlias and also in the class for twelve blooms. Mr. T. J. Wright of Doncaster was a good second with twenty-four Hollyhocks; whilst Mr. Henry Clarke was equally as good second with twenty-four Dahlias and twelve blooms. For twenty-four Roses, dissimilar, Mr. Proctor of Chesterfield secured the first position with a good stand; Mr. Holland, gardener to Mr. Duncan Gilmour, being second.

The extensive nurseries of Messrs. Fisher, Son, & Sibray were very generously thrown open to the public, who were not slow to avail themselves of so great a privilege, and it is said that there were quite as many visitors to the nursery as to the flower show. The plants in all the houses are in clean condition and robust health, particularly the magnificent stock of hybrid greenhouse *Rhododendrons*. In one house of cool temperature is a truly floriferous specimen of *Stephanotis*, which at the present time is a perfect sheet of bloom, as it has been during the months of August and September for several years. In another span-roofed house is an excellent lot of Vines in pots carrying six to eight good bunches of fruit. The kinds are Black Hamburg, Muscat of Alexandria, Mrs. Pince, Madresfield Court, Buckland Sweetwater, Gros Colman, Bowood Muscat, and White Frontignan. The pots, 12-inch, are not plunged, but have sheets of brown paper tied round them, which protect the roots from the too drying influence of the sun's rays. In another house is a good display of Orchids, amongst which are conspicuous *Mormodes pardinum*, *Miltonia Regnellii* pur., *Zygopetalum maxillare*, *Oncidium Lanceanum*, *Dendrobium heterocarpum philippense*, *Lælia Dayana*, &c. Other houses contain sturdy batches of *Ericas*, *Epacris*, *Azaleas*, *Camellias*, Ferns, cool Orchids, and *Lapagerias rubra* and *alba*. *Hyacinthus candicans* with spikes 5 to 6 feet high was very effective. The arrangement and condition of the whole stock in the glass department reflects great credit on Mr. Williams, Messrs. Fisher, Son, and Sibray's propagator and foreman.

EARTH-CLOSET MANURE.

THERE is no discrepancy, such as "INQUIRER" suggests, between sound science represented by Dr. Voelcker, and sound practice as represented by Mr. Taylor. "INQUIRER" has simply not adverted to the quantities employed in each case. Dr. Voelcker was writing of applications of from a half ton to one ton per acre, and of a price of £1 charged per ton, and he showed that the real value of the manurial addition to a ton of soil was about 2s. But Mr. Taylor applies half a bushel, which may be taken as about half a cwt. per square yard, which is at the rate of more than 100 tons per acre, and would, at Dr. Voelcker's estimate, be worth above £10. Furthermore, in so large a quantity of good soil, containing also, as Mr. Taylor tells us, a quantity of burnt clay, there would be, apart from the manure, a very considerable proportion of fertilising matter which the copious waterings would wash into the border. But Dr. Voelcker in the same paper also anticipated the remark of Mr. Taylor, that the earth-closet manure from private houses is probably richer than that from prisons, and he gives an analysis by Dr. Gilbert of earth once used in a private establishment, which proved to be nearly two and a half times as valuable as that obtained from a prison. This value would make Mr. Taylor's application equal to £25 worth per acre. Or comparing the constituents of the earth-closet manure with those of farm manure, it would be equivalent to an application of 33 tons per acre of the best rotten farm manure, made under cover and by beasts fed on cake. This,

applied year after year, far from being an inadequate manuring, is an exceedingly heavy one. It would probably be even injurious were it not for the very copious waterings which Mr. Taylor gives in the course of the season, and which, being much more than the soil can retain, will wash the surplus of nitrogenous products into the drainage.

It is not everyone, however, who can obtain either earth-closet manure or farmyard dung in sufficient quantities, and even Mr. Taylor has been driven to supplement his supplies with Standen's manure; but between the natural and the artificial manures there is a distinction which it is important to keep in view. The former operate by degrees, as their organic matter decays, and by decay furnishes the soluble compounds of nitrogen which the roots take up. Thus there is no immediate risk from an overdose, and there is a continued supply afforded. But in the artificial manures the most active ingredients are usually extremely soluble; they are at once offered to the roots, and they are entirely washed out by one or two thorough soakings which descend to the drainage. Those who use them ought, therefore, to divide them into as many doses as there are waterings administered, omitting them of course when it is desired only to moisten but not to wash the border.

The principal manurial ingredients in Mr. Taylor's application would be furnished by the following quantities per acre—sulphate of ammonia 14 cwt. (or nitrate of soda 18 cwt.), bone meal $4\frac{1}{2}$ cwt., muriate of potash (80 per cent.) 10 cwt. These would be certainly hurtful quantities to apply in one dressing, but divided by 10 they would form a safe and beneficial application to be given five or six times in the season. Each would then be not very different from what a farmer would give once for all to a single crop, except that he would probably add, what might here usefully be done, a larger proportion of the slow-acting bones. Anyone can easily calculate the proportion necessary for his own border, but it may be taken as a little over 1 oz. of the mixture per square yard for each application; but to those who cannot make such a mixture for themselves I can strongly recommend the artificial manures compounded for Vines (as well as special manures for other garden crops) by Messrs. Arnold & Co., chemists, Guernsey. They are prepared by a good agricultural chemist with much care, so as to contain all the elements which each description of plant requires at its different stages of growth, and they are not charged at the prices of fancy manures, but at the actual cost of the ingredients, with a moderate per-centage to cover the expense of mixing and give only a fair profit. Such combinations of artificial manures have long been called for by gardeners, and I am glad of an opportunity to bear testimony in favour of some that are trustworthy.—J. B. K.

SELECTIONS OF SEEDS.

ALTHOUGH Mr. Bartrum (page 114) may not have made his case quite plain, nor stated his precise requirements, yet it is questionable if his grievance is purely a sentimental one, notwithstanding the critical remarks of "A PARSON'S GARDENER" last week. I think it will not be denied that purchasers do pay more than they used to do for "exercising their right of private judgment" in selecting seeds; nor can the increase in price be attributable altogether to bad harvest seasons, as if this were so the collections ought also to be dearer than formerly, which does not appear to be the case. Even the Peas which your correspondents recommends, presumably on economical grounds, were last year one of them 1s. 6d., the other 2s., and the third 3s. per quart; and I have a few years ago certainly purchased Champion of England for 1s., and Ne Plus Ultra for 1s. 6d. per quart. Other seeds, too, appear to have "crept up" in the same proportion; still the collections, at least according to the vendors of them, are better and cheaper than ever. There must be a reason for this disparity, and possibly a good one, but it is not familiar to cultivators.

It is, however, little use complaining. The articles are priced, and we do as we like about purchasing. Do we? In my case, and I am not alone, I must not exceed a given sum for seeds, and I do not do quite as I like, or I should spend more of my employer's money. According to some of the high-morality fraternity I should do wrong in that. But I am of opinion I do wrong as it is, for many a packet of seed have I bought and many a shilling have I spent for seeds out of my own pocket for sowing in my employer's garden. This is, I think wrong, and it certainly would not be done except as an act of necessity, and to keep things going as smoothly as possible. It is a wrong done to avert greater unpleasantness arising than paying a shilling or two, much as they might be wanted for other purposes. This is what I call "paying too dear for private judgment."

Collections were no improvement in my case, for I got so much

of what I did not want, and not enough of some things that were absolutely necessary. I eventually found a remedy, and that was to save seed of some crops instead of purchasing it. This I must continue to do so long as seeds cannot be grown and sold for lower prices than at present. Thinner sowing, too, will have to be practised, and half an ounce of seed bought instead of an ounce by those who either cannot or will not spend more than when money was more plentiful and seeds less dear. Perhaps as the present season has been fairly fine, the seed harvest may be better than usual to the advantage next year of both sowers and sellers. This, however, will scarcely explain the difference in price of seeds when selected by the purchaser and chosen by the vendor. Can anyone explain it for the information of—A POOR GARDENER?

THE ETHICS OF EXHIBITING.

WHEN I wrote some time ago on the ethics of exhibiting I stated that, as far as my experience went, there was less of dishonesty in flower shows than in most other competitive exhibitions; but this opinion has been rudely shaken by some things which I have seen and heard this year. I have seen, for example, in the month of August excellent Black Hamburgh Grapes and Nectarines exhibited by a cottager, in which case we must either suppose that a very wide latitude was given to the interpretation of the term "cottager," or else that the exhibitor's ideas of fairness were of a very shadowy character; but that is nothing to what I now subjoin. The following letter which I send you, having erased the names, was handed to me by a leading nurseryman, with permission to make what use of it I liked.

"Dear Sir,—I take the liberty of asking if you are in a position to supply me, on the 14th September, all set up on stands ready for show, the flowers named below; and if so your price, carriage paid here. If you cannot supply all please quote price for those you can. Terms cash before delivery. If you have one of your catalogues in print I shall be glad to receive one.—Faithfully yours, —"

"Twelve Dahlias, nine varieties; three ditto, fancy; three ditto, fancy; six ditto, three varieties; six cut Roses, six varieties; twenty-four ditto, twelve varieties; six Pansies, four varieties; six ditto, Belgian; six Carnations; six Picotees."

It will be readily imagined that a very straight answer to this was given, and in reply the exhibitor stated that it was entirely uncalled for, for that in the Society at which he exhibited there were two classes—one in which the exhibits were to be grown by the exhibitor, and in the other they might be obtained wherever he might be able to get them. I can hardly conceive this to be true; but if it is, and this should meet the eye of any of its managers, I hope they will see that nothing can possibly tend to injure a society so much as such a regulation, while it must demoralise the exhibitor and certainly do no good to horticulture.—D., Deal.

PROPAGATING BEDDING PLANTS.

THE time has now arrived when propagating for next year's supply of bedding plants must commence in earnest, for be it remembered one week at the present time is worth two or three later on. Where the work has not already commenced not a day should be lost. Perhaps it would be as well to say at once that these remarks are not intended for the professional man, but only for those who keep no regular gardener of their own, who have to do most of their own propagating in their leisure time.

For summer bedding first stand the Pelargoniums; and with these August is the best month for propagating. Not that they are difficult to strike at any time of the year for the practical man who has the necessary conveniences at hand; but because in this month the wood or shoots is in the best possible condition—i.e., half ripened, and the temperature of both soil and atmosphere is such as to induce the formation of roots in a very short space of time. Begin with the variegated section—bicolors and tricolors. Many persons insert these singly in thumb pots. With choice kinds and where a little extra labour is no object this is perhaps the best plan; but with older sorts and where the greatest amount of work in the shortest possible time has to be considered, the best plan undoubtedly is to insert a number of cuttings in 4 or 5-inch pots. In these they may be wintered and transferred singly into 60-pots in the spring. Other sorts—such, for instance, as Vesuvius—may be inserted in boxes about 18 inches long, 14 inches wide, and 4 inches deep: these when filled should contain from fifty to sixty cuttings each. Both pots and boxes should be placed on coal ashes outside till the end of September or the first week in October, when they should be moved into their winter quarters, which may be either a greenhouse or vinery, where they will be safe from frost. The best compost is two parts of finely sifted soil, one-fourth leaf soil, and one part silver sand. One good potsherd at the bottom of each pot will be quite sufficient. Cover with moss or fibry loam, and fill up with the above-mentioned

compost to within about an inch of the top; press it down quite firm, and insert the cuttings, standing the pots outside in the full sunshine. No watering will be necessary for a week or ten days unless the weather is very bright and warm, when, late in the afternoon, a slight watering with a rose pot occasionally would be suitable to keep the foliage fresh.

For the propagation of most other kinds of bedding plants which have to be kept in a greenhouse through the winter a frame and hotbed will be necessary. Such admirable directions have recently appeared in your columns respecting the proper way of making up hotbeds that I need not dilate on the matter here further than to say, Let the rank steam subside before inserting the cuttings, or disastrous consequences may be the result. An immediate beginning may be made with the undermentioned, all of which will need the aid of frames—viz., *Alternantheras*, *Verbenas*, *Ageratums*, *Coleus*, *Gazanias*, *Lobelias*, *Konigas*, *Mesembryanthemums*, &c. In addition to cuttings of these it is advisable—in fact some people adopt the plan in preference to autumn propagating—to lift and pot a few plants of each of the above: these will furnish abundance of cuttings in the spring. More drainage in the pots will be required for these than for *Pelargoniums*; indeed it might almost be said that half the success in striking the cuttings depends on good drainage. The pots ought, therefore, to be nearly half filled with potsherds, on which should be placed a layer of common moss. I may also add that 6-inch pots are generally employed for these cuttings, to be filled to within an inch of the rim with the same compost as that used for *Pelargoniums*, but with this difference—the pots must have a good layer of sharp silver sand on the top.

We now come to another class of plants—viz., those which will stand a few degrees of frost, and which may be propagated somewhat late in the season. Amongst these *Calceolarias* and *Violas* are perhaps the most important. The month of October will be quite early enough to begin with these. A cold frame, either turf or wood, is the best place to propagate them in. This should be filled to within 9 inches of the glass with half-decayed manure, being at the same time well trodden down. On the top of this place about 6 inches of the compost recommended previously, finished off with a good layer of sand, and smooth it with the back of a spade. Insert the cuttings in rows about 2 inches apart each way; give a slight watering through a rose pot, put on the lights, and keep the frame close. Shade from bright sun until the cuttings are rooted, after which air should be given on all favourable occasions.—H. J. H.

SOUND POTATOES AND THEIR CULTIVATION.

My Potatoes have again turned out a very fine sound crop. The early sort, Improved Ashleaf, was lifted at the end of July. Suttons' Reading Abbey, also a fine crop, lifted on August 14th. For main crop I have adhered to Suttons' Magnum Bonum, lifted August 22nd, which, as usual, has proved an immense crop—about six sacks from a bushel of seed. No sign of disease was detected in either variety. They were all planted during the first week in March, on ground which was cropped with green vegetables the previous year. I never use any manure in planting Potatoes; simply a good dressing of leaf soil, the ground having been well manured for green crops the previous year. I incline to the opinion, after many years' experience, that the great secret of success is early planting without manure. The soil here is a very dry sandy loam, on which the rain never rests, but percolates through it at once. I have been reminded by gardeners that early planting can only be carried out on dry soils. I am not in a position to dispute or corroborate such statements. If, however, my dry soil grows large crops of sound Potatoes without manure, why do they use large quantities of the latter on wet soils? The ground was so dry when my Potatoes were lifted that the tubers came out bright-skinned and clean. How seldom is this the case when they have been exposed to the heavy autumn rains.—W. G. Surrey.

HARPENDEN HORTICULTURAL SOCIETY.

THREE years of well-directed energy in the management of this Society have demonstrated that where all the promoters of an undertaking are zealous and work together with a good will, the ratio of success which can be achieved in a short time is not in proportion to the population of the district nor to the size of the town which may be the seat of their labours, but rather attends upon the organising powers of a few who are frequently in close association in public or private business; and to this must probably be attributed the prevalence and prosperity of so many of our good horticultural exhibitions in the smaller towns and even villages, when the larger cities and centres are often only able at best to make intermittent spurts. The Harpenden Society is fortunately in close alliance with

Rothamstead, the park of which adjoins Harpenden, and is under the fostering influence of Sir J. B. Lawes, Bart., and the able staff of the renowned farm and laboratory, the good results attending their labours and experiments having in many respects impregnated with science the whole locality; and at Harpenden almost every child, if not half a botanist at birth, soon receives his botanical baptism at school, where botany and horticulture are radically but perhaps insensibly engrafted with admirable results into the ordinary educational routine of the district; and it is not uncommon at Harpenden to meet with children who are not only able to identify plants but also the grasses, their habitats and uses, an advantage not possessed by all advanced botanists or by few experienced agriculturists.

The fourth Exhibition of the Society was held in Rothamstead Park on the 31st ult. The morning opening most auspiciously; but the afternoon belied the barometer, and unfortunately an almost continuous downpour of rain greatly marred the success of the Show as a holiday. Horticulturally, however, little was left to be desired, so complete were the arrangements. The show of plants although good was not one of the strong features at Harpenden, but some well-grown specimens were shown by Mr. G. Underwood, gardener to C. R. Fenwick, Esq., High Firs, Harpenden, who was first for the collection of twelve miscellaneous plants, and for the group of plants arranged for effect. In the former exhibit *Vinca ocellata*, *Dipladenia boliviensis*, and *Bougainvillea glabra* were very fine and well flowered. For twelve plants in 6-inch pots Mr. C. Pollard, gardener to J. B. Maple, Esq., Childwick Bury, St. Albans, was first, having lovely little plants of *Cyanophyllum magnificum* and *Pandanus Veitchii*. Ferns, especially the hardy varieties, were well shown; Mr. J. Freeman, gardener to W. B. Greenfield, Esq., Beechwood Park, Dunstable, being first for a collection of eight, containing a good plant of *Scolopendrium vulgare crispum*, and all being very clean and healthy. Zonal *Pelargoniums* and *Fuchsias* were both well grown and well flowered, although not large; the first prize for the former going to J. S. Hill, Esq., Hawkswick, St. Albans, in whose collection was a fine scarlet with distinct white eye, named Mrs. Whitley. For the latter Mr. J. Elmer, gardener to Mrs. Warde, Harpenden, was first; *Giantess*, *Enchantress*, *Rose of Castile*, and *Duchess of Lancaster* being very good specimens.

Cut flowers were largely and well shown, and were a striking attraction here. Roses came from Messrs. Paul & Son, The Old Nurseries, Cheshunt, and for the season were clean and in good colour. For forty-eight distinct blooms in the open class they were awarded the first prize. Amongst their best blooms were noticeable William Köelle, Charles Darwin, R. N. G. Baker, and Edouard Andre, all good new varieties; *Marquise de Castellane*, *Marie Baumann*, *Madame Margottin*, and *The Shah* were also conspicuous. Messrs. E. P. Francis and Co. of the Hertford Nurseries were very creditably second. For twenty-four varieties in the open class the Rev. W. H. Jackson, Stagsden Vicarage, Bedford, was first, having Paul Neyron, *Capitaine Christy*, A. K. Williams, *Marie Baumann*, and *Madame Lambert* very fine, and it is no discredit to the great firm who took honours in the larger class to note that Mr. Jackson's twenty-four were quite equal in merit to the best box of Messrs. Paul's forty-eight which adjoined it; size, substance, colour, and form, all being good points present in Mr. Jackson's stand. The same gentleman was also first for twelve and six varieties in the amateurs' classes with equally meritorious flowers. The best bloom, however, in the Show was one of *Senateur Vaisse* in the stand of Messrs. W. Paul & Son of the Waltham Cross Nurseries, who had some very fine flowers, including six of *Marie Baumann*, which would not have shamed a July prize stand. They also staged some good herbaceous and hardy flowers, but not for competition, and in which a fine strain of French Marigold was noticeable.

The great contest of the day was in Dahlias between Messrs. G. Paul & Son, who appear to be new exhibitors in this department, and the veteran Mr. H. Glasscock of Bishop's Stortford, who had each magnificent stands of forty-eight varieties, and ultimately Messrs. Paul were placed first, and Mr. Glasscock second. In the first stand was a unique flower of Northern Spy, rich purple, tipped reddish pink, and fine blooms of Christopher Ridley, Lord Chelmsford, Henry Bond, and J. Wyatt. Amongst Mr. Glasscock's best flowers were Mrs. Saunders, Prince of Denmark, and Lady Wimborne (mauve). Mr. C. Turner of the Royal Nurseries, Slough, also exhibited a very fine stand of twenty-four, but not for competition. For twenty-four *Gladioluses* Messrs. Kelway & Sons of Langport, Somerset, were the only exhibitors; striking flowers in their collection being *Pitys*, bright vermilion with large clear white throat; *James Kelway*, *Egyptian King*, and *President*.

Herbaceous plants were well represented, Mr. J. Henshaw, an enthusiastic amateur of Harpenden, staging in an effective manner very showy collections, and for which he was awarded first honours in the open and amateurs' classes. In the former his flowers were *Dahlias Juarezii* (splendid) and *coccinea*, *Campanula pyramidalis alba*, *Lilium tigrinum splendens*, *Galtonia* (*Hyacinthus*) *candicans*, *Oenothera macrocarpa*, *Achillea Ptarmica* fl.-pl., *Rudbeckia Neumannii*, *Coreopsis lanceolata*, *Tigridia pavonia*, *Gladiolus brechleyensis*, and *Lobelia cardinalis*. Messrs. G. Paul & Son were second with a fine stand containing *Harpalum rigidum*, *Lathyrus latifolius splendens* of the deepest crimson, and *Stenactis speciosa*. Miss Debenham, Ivy House, St. Albans, was awarded an extra prize in this class, *Achillea rosea* being very showy in her collection. We have rarely seen herbaceous plants better or more effectively shown.

Fruit was not largely represented, but the collection of six varieties from Mr. Pollard, who obtained first place, contained fine Black Hamburg Grapes, Peaches, and Nectarines. For black Grapes Mr. G. Chuter, gardener to Captain Ames-Lyde, Ayot St. Lawrence, was first with well-finished Black Hamburgs. Very good Souvenir du Congrès and Jargonelle Pears, and Kirke's and Diamond Plums were staged, but the other fruits do not call for special notice.

Vegetables were largely contributed, and for the district, with the exception of Potatoes, were in fair condition. The latter were, however, rough and not clean. White Elephant as shown here and elsewhere was not white, but seems to be a coarse edition of Beauty of Hebron. Reading Russet, a good medium-sized, pinkish, flat Potato, one of Mr. Fenn's seedlings, was well shown, its skin russety, and apparently a useful Potato for general purposes. Mr. C. Pollard was first for the collection of twelve varieties, and Mr. Wilson of St. Albans for the six. For Peas the first prize was awarded to Mrs. Robinson, Harpenden, for Omega, a good sample of Telegraph being also shown. Cucumbers were generally coarse, the best brace in both classes coming from the Rev. W. H. Jackson. In the cottagers' department the vegetables were good. A very neat tray from Mr. J. H. Crawford, Cravell's Road, Harpenden, contained fine Telephone Peas, a few Tomatoes, Cucumbers, and other vegetables, all excellent and not too coarse. It is not often so good and regular a collection is seen in the cottagers' class.

In the miscellaneous exhibits single Dahlias were strongly shown, but not for competition, by Messrs. Paul & Son, Cheshunt; C. Turner, W. Paul & Son, and Mr. T. S. Ware, Tottenham; amongst the most striking flowers were White Queen, Cervantesii, Mauve Queen, Paragon, Dash, and Flower of the Garden (G. Paul). Good Zinnias were also shown by Miss Debenham and others.

For table decorations the first prize was awarded to Miss H. Field, Harpenden, for a light but replete table. For a vase of flowers and for a memorial wreath Miss Henshaw, Harpenden, was first in both classes. The best three buttonholes came from Miss M. Brown, Digswell, and ladies' dress decorations from Miss H. Sibley, Harpenden, all showing real taste, the dress decorations being effectively composed of *Lilium tigrinum* and *Rose Niphetos*, combined with *Adiantum*.

Wild flowers were largely and better set up than usual at exhibitions, the nomenclature and classification being generally correct. The prizes for wild fruits were well contested, but the exhibits did not indicate a correct appreciation of the meagre indigenous pomology of the district, many introduced species being represented, and a very wide interpretation of the term "fruits" being admitted. As will be seen, the Committee were rewarded for their spirited endeavours with a good competition, and Harpenden may be congratulated on the position it is taking in horticulture.

EXACUM MACRANTHUM.

A FEW weeks ago the plant, a spray of which is represented in fig. 38, was alluded to in a contemporary as a "beautiful new stove plant." The flowers are certainly most beautiful, but the plant is decidedly not new. On the contrary, it flowered in the Glasnevin Botanic Garden in 1853, and is figured in the "Botanical Magazine," tab. 4771, March 1st, 1854. Our engraving has been prepared from a flowering specimen, and, as will be seen, the flowers have a great resemblance to *Solanums*, though the plant belongs to the *Gentian* family. They are about 2 inches in diameter, the corolla being divided into five broad ovate segments, slightly recurved, terminating in a rather sharp point. Their colour is almost of indescribable richness, being a rich indigo purple with a satiny sheen; the flowers, which are borne on a terminal corymb, being the more striking by the deep yellow prominent anthers. The leaves are opposite; those on the upper part of the stem being sometimes 3 inches long and an inch wide, tapering to both ends; the lower leaves are smaller and less pointed. They are bright green and slightly ribbed. The plant grows about 18 inches high, and succeeds in an intermediate house. It was found in Ceylon at an altitude of 6000 feet, and, though still rare, it is worthy of being largely increased and widely distributed.

FRUIT NOTES.

FRUIT of all kinds except Apples is abundant and fine this year, but there is a deficiency of flavour in most of it, arising from the low temperature of the dull wet summer. The contrast between the Apple crop of last year and this is remarkable; then we had trees crushed beneath the load of fruit, now we have hardly a fruit upon hundreds of trees. Exceptions to the general scarcity are few and far between, and they invariably occur in orchards thoroughly sheltered from high winds. I have only met with two such as yet, one in Sussex and the other in Berkshire. How thorough such shelter must be to be really effective was shown clearly and forcibly in the great storm of April 29th, a regular "Black Saturday," for many trees, but more scathing in its effects upon Apples and Oaks than anything else, lacerating

the foliage and destroying the entire crop of the Apples, and blasting the spring growth of the Oaks so thoroughly that they remained without a shoot or leaf till midsummer, gaunt and bare as though they were dead. Balmy genial midsummer! how its kindly vivifying touch brings life and fulness to much that was apparently dead and bare. The scars of spring disappear as though by magic; foliage perfect and abundant crowds the deciduous growth with a beauty and freshness not often seen in spring time.

That other fruits suffered in a proportionate degree to the exposure of the trees to the storm there can be no doubt, and many striking examples might be quoted. One of the most remarkable is that of two Plum trees, one a Golden Drop and the other a



Fig. 38.—*Exacum macranthum*.

Diamond, growing upon a gable of a lofty building here. The lower branches are screened from south-western winds by another building, and have plenty of fruit, but all those above the building have none. A row of pyramidal trees of various sorts of Gage Plums were very full of bloom, but exposure to the storm caused the whole of it to be swept away. In contrast to this some Rivers' Early Prolific much exposed had a heavy crop of fruit, so also have some Victoria Plums growing near them. Damsons are abundant, so also are Prince Englebert Plums.

Many sorts of Pears are very plentiful, Comte de Lamy and Jargonelle among pyramids. Upon a west wall there are full crops of Beurré Clairgeau, Fondante d'Automne, Doyenné du Comice, and moderate crops of Glou Morceau, Josephine de Malines, Beurré de Rance, Williams' Bon Chrétien, and Maréchal de Cour. Upon an east wall out of many I may select as having very full crops Citron des Carmes, Monarch, Louise Bonne of Jersey,

Beurré d'Anjou, Beurré d'Aremberg, Dana's Hovey, and Nouvelle Fulvie. Beurré de l'Assomption has some fine fruit of excellent flavour, much superior to any I have previously tasted. Such freaks of flavour-development are peculiar in a season remarkable for poverty of flavour; and, strange to say, I have never had such excellent fruit of Early Albert Peach from an open west wall before. The fruit is remarkably handsome, and is equally fine in size, colour, and flavour. Early Beatrice Peach was very good from an open wall, so also are Royal George and Belle Bauce. Early Rivers was ripe a fortnight sooner than usual; its fruit was large, poor in flavour, and had the stones split almost without an exception.

Nectarines are very plentiful on open walls, Lord Napier having rather the smallest crop, but the large size of the fruit well atoned for this. Rivers' White Nectarine, Stanwick Elrue, Violette Hâtive, Balgowan Pine Apple, Pitmaston Orange, and Downton are all good, and the trees have fully recovered from a severe spring attack of blister; I ought to have said the usual attack, for they rarely escape it.

Both Red and Black Currants had heavier crops than I had ever seen here before; Gooseberries, too, were very plentiful, and Prince of Wales Raspberries were remarkable for size and abundance. American Blackberries are just ripening, and are much valued as a preserve, a row some 70 feet long affording several bushels of fruit. They are planted in very rich soil, and are well worthy of it, for there is no wasted vigour among Blackberries—the stronger the growth the finer and more plentiful the fruit.

Strawberries in compact rows 2 feet apart had plenty of fruit, but much of it decayed before it could be picked. Single plants kept well apart certainly proved most useful this year. Both systems of culture possess peculiar advantages, the rows giving most fruit, but that of solitary plants ripen earlier and is not so liable to suffer from decay. In striving to accelerate and prolong the season of this favourite fruit plant early sorts upon steep sunny sheltered slopes, as well as out upon the flat open quarter of the garden, and late sorts upon north borders and under the shade of trees.—EDWARD LUCKHURST, *Sussex*.

A WEEK IN BELGIUM.

[THE SIXTH DAY—Completed.]

LAST days are often busy days—days of rush and bustle; much has to be seen and done in a little time. In this instance it was so. A rush round three nurseries, attending a funeral in one city, a show in another, and catching a steamer in a third, in the meantime traversing a distance of sixty miles, rendered it necessary to keep moving. A year has elapsed since then, and the holiday season has come round again. My notes, therefore, however long retarded, of the last day of a holiday trip will scarcely be unseasonable. After having referred briefly to the different establishments visited, it were ungenerous indeed to omit the last; and on the principle of better (or worse) late than never, I will record something of what I saw during

HALF AN HOUR AT PYNAERT'S.

Pynaert-Van Geert is the complete patronymic of this gentleman—under certain circumstances the wife's name being added to the husband's in Belgium—and under that compound his business is known throughout the civilised world. Still his establishment is not large; on the contrary, in comparison with our large English nurseries it is small: but mere extent of territory is not always an index of position, of which our own country, which is represented by a mere speck on a map of the world, forms a sufficient illustration.

Mr. Pynaert is not a nurseryman exclusively, but is a "garden architect" of great repute, or what we should call a landscape gardener. He is also, with M. Rodigas, an editor of an important monthly horticultural publication, the "Revue de l'Horticulture Belge." Thus Mr. Pynaert is a busy man—one of the working bees in the great horticultural hive of Belgium. He is frank and most pleasant withal, and gives an English brother of the craft and pen a warm welcome, greets him in his own tongue, makes him at home in a moment and feel as if he would like to stop longer and then go again. This is one of the penalties that all Belgian horticulturists incur, and is also why their recent visit to this country was so much enjoyed by all who had the pleasure of their company.

The nursery under notice is situated near the Porte de Bruxelles, Ghent, within gunshot of Van Houtte's, De Smet's, Dallièr's, D'Haene's, and some others, for there appears to be a nest of them in this horticultural suburb of a horticultural city. And what is the nursery like? It is just like a fish. Imagine a huge fish laid on its side, about a quarter of a mile long, and of fish-like proportions, the flattened tail resting on the public road, a canal running round every other part, and you have the structural character of Mr. Pynaert's nursery, the north side being sheltered by a very high hedge. It would be like a fish out of water but for the life and activity prevailing. But what is there in it? Just where the tail narrows the commodious residence stands, and in the space in front a number of splendid match pairs of standard and pyramid Bays of various heights

and sizes are arranged, admirable in symmetry and excellent in health. These Bays are fine ornaments for terraces in towns where refreshing green trees are wanted and space is limited. They tone down the harshness of masonry where it cannot be clothed with vegetation, and impart repose to the surroundings of private homes and public squares. In the grand open space round St. George's Hall, Liverpool, a number of specimen Bays in tubs are arranged, and they add greatly to the appearance of the noble building, and render the square highly ornamental. But the position is too cold for them. The rough winds driving up the Mersey whistle through the comparatively narrow streets, and the beautiful Bays cannot endure without injury blasts so keen. This is a misfortune. Specimen Hollies would be better at Liverpool, and the Bays safer further inland. They require shelter in winter, and at Mr. Pynaert's the largest house is devoted to them, this building being of course empty in summer. But other houses are not empty.

Several structures are devoted to Palms, splendid decorative plants in exuberant health and rich colour. One house is filled with *Areca Baueri*, a second with *Phoenix reclinata*, a third with *Geonoma gracilis*, a fourth with *Kentias* in the different forms and so on—all the kinds in demand being represented. One span-roofed house was filled with *Gloxinias* planted out on ridges, as if they had been earthed up like Potatoes. Another large structure was devoted to *Clivias* (*Imantophyllums*), the finest and most complete collection of these plants I ever had the pleasure of inspecting. Their leaves were of the deepest green, and a few solitary trusses were 18 inches in diameter, the petals being 3 inches across. The varieties are numerous, Mr. Pynaert having devoted special attention to them, and during the flowering season the house must be grand. Other houses are filled with *Dracænas* and decorative plants of all kinds usually found in nurseries, and we must pass them to pause at the *Begonias*.

Ornamental-foliage *Begonias* are steadily increasing in public favour. They are amongst the finest of town and room plants, and the new varieties are beautifully marked. Mr. Pynaert has 150 varieties, several being planted out in side beds in the houses, and thousands in the course of propagation. A few striking varieties in this great collection were *Madame Bichol*, much mottled reddish veins; *Pluie*, marbled red veins; *Margaritacea*, dark leaves blotched with silver; *Madame Banchotte*, dark, wavy, silvered, free; *Argentea picta*, silvery green, mottled margin, distinct; *Teneque*, dark centre, wide silvery band, clearly defined, velvety margin, effective; *Robert Schumann*, dark centre, broad silver band, edge composed of two distinct shades of green, good; *Juliette Raulin*, silvery centre splashed with black, band red with white spots, edge maroon; *Lustre*, dark ground, colour densely spotted with white, silvery band; *Ed. Pynaert*, fine leaf, dark centre with clear silver marbling, edge still darker spotted with white; and *Madame Dehée*, compact, velvety leaves marbled with white, distinct. These are quite dissimilar from the familiar *rex* varieties, and the rich velvety and metallic lustre of their leaves command attention.

In frames were large numbers of Tuberous *Begonias*, *Cannas*, *Aspidistras*, and other plants in great demand; in beds, *Azaleas* of the *indica*, *pontica*, and *mollis* types (fine plants in good varieties), also healthy *Camellias*, *Choisias*, and *Rhododendrons*. In the open ground every inch was occupied with evergreens and ornamental trees (variegated and weeping), *Thuias*, *Retinosporas*, *Cupressuses*, *Weigelas*, the walks being margined with *Dentzias*, variegated *Spiræa japonica*, and hardy herbaceous and alpine plants. In fact, every part of the fish-shaped island was turned to the best account, indicating a brisk trade, and the order gave evidence of skilled supervision.

CONCLUSION.

And now having told something, but not all, of what I saw during my week's holiday, I will tell what I did not see. I did not see the wonderful examples of fruit culture on the railway embankments which we read about in books, for the best of all reasons—that there were no "embankments" worthy of the name, for the country is flat, while there is scarcely any margin of ground between the rails and the fence on the lines I traversed. Perhaps the culture in question is further south, and perhaps also it has been made the most of—on paper.

But while I saw little of fruit, forest tree culture was apparent enough. There are long lines of Poplar trees almost everywhere. By the sides of roads and ditches these trees abound. They are planted 6 or 8 feet apart, and grow rapidly. The Canadian Poplar is the variety selected. It is the most productive of trees in Belgium, and its value increases at the least one franc per year. In about thirty years the tree is fit for sale, and fetches generally from thirty to fifty francs. The wood is chiefly used as boards for packing cases, and in some instances for the manufacture of wooden shoes. The administration of many villages in the country plant Canadian Poplars on the public roadsides, and derive a good part of their income from them. In the Waes district between Antwerp and Ghent the proprietors abuse their privilege of tree-planting by surrounding every piece of land with Canadian Poplars, and the tenants are willing to pay a franc per year and per tree to get them away—so much amongst other things of the "paradise of small holdings."

I have found more than once that a week can be spent pleasantly, profitably, beneficially, and inexpensively along the eastern shore of the German Ocean. I wish more gardeners could enjoy such a holiday and experience such a change as they would find there, with strangers

all around them but friends on every hand. True they must cross the, at times, tempestuous sea, and take their chance of having a taste of the dreaded *mal de mer*. Once they have this they will have a "change" indeed, as on a never-to-be-forgotten occasion I bitterly experienced. What is it like? It is just like what Captain Marryatt has described of a terrible passage across the same sea, as follows:—"Paddle, paddle—splash, splash—bump, thump, bump. What a leveller is sea sickness—almost as great a radical as death! All grades, all respect, all consideration are lost. The master may summon John to his assistance, but John will see his master hanged before he'll go to him. He has taken possession of the master's great coat, and intends to keep it; he don't care for warning. Then the poor children. 'O lauk, Mary, do just hold this child,' says the upper nurse to her assistant, 'I do feel such a sinking.' 'Carn't indeed, nurse, I've such a rising.' A young lady will recline unwittingly in the arms of a perfect stranger, and the bride of three months, deserted by her husband, will offer no resistance to the uncouth seaman who, in his kindness, would loosen the laces that confine her heaving bosom. One would imagine that the passengers were so many pumps all worked at once by the hundred-horse engines of the vessel, for a hundred people were about me each as sick as a horse."

There is no exaggeration there, and the facetious captain wrote the "sober" truth for once. But let no one be deterred. The passage is not always so, but only occasionally, during the raging equinoxials of autumn. In the summer the sea is smooth and beautiful, and the boats better than they used to be. I was fortunate in securing the same favourite steamer home (the *Princess of Wales*) that took me out from Harwich, and steadily, smoothly, pleasantly, almost luxuriously, we glided into the familiar port once more.—J. WRIGHT.



We are informed that the entries of DAHLIAS for the National Show that opens on Friday at the Crystal Palace are more numerous than was expected; there is, however, plenty of room for all competitors, and the Exhibition will be a very large one. The display of single Dahlias will be by far the finest that has ever been seen. A good show of fruit is also expected.

— "A. B." will be glad to know "the name of some CHEAP WHITE GLADIOLUS, to flower along with *G. brenchleyensis*. He has seen one with a light crimson throat in gardens, which would do if he could ascertain the name. The flowers are just the same size as those of *brenchleyensis*." Perhaps some of our readers can supply the information requested.

— A CORRESPONDENT informs us that Mr. Bardney of Donington, near Spalding, Lincolnshire, planted on April 16th 3 lbs. of the WHITE ELEPHANT POTATO in two different parts of his garden—viz., 2 lbs. in one, and 1 lb. in another. These Potatoes were lifted on August 16th, and the produce from the 2 lbs. was 9 stones 2 lbs., and from the remaining 1 lb., 4 stones 5 lbs., the total yield from the 3 lbs. being 189 lbs., or 13½ stones, many of the tubers weighing 1 lb. and over, all being good and sound.

— THE WIMBLEDON AND DISTRICT ROYAL HORTICULTURAL SOCIETY will hold an exhibition of Chrysanthemums at the Lecture Hall, Wimbledon, on Wednesday, November 22nd, when prizes will be offered in fourteen classes, the most important being that for a group of Chrysanthemums in pots.

— THE WESTERN CHRYSANTHEMUM SOCIETY will also hold an exhibition in the Guildhall, Plymouth, on November 14th and 15th, when numerous prizes will be offered for Chrysanthemums, miscellaneous plants, and fruit. Several valuable special prizes are offered by gentlemen in the neighbourhood.

— MR. CANNELL has sent us blooms of new CONTINENTAL TUBEROUS BEGONIAS of extraordinary size and substance of petal, and of great richness in colour. The petals exceed 2 inches in diameter, and the flowers, which are described as "small examples," produced after the plants had travelled four hundred

miles, are nearly 6 inches across. We should like to see what Mr. Cannell regards as large flowers when they are produced by his latest introductions.

— THE INTERNATIONAL SHOW, which will be held in the Waverley Market, Edinburgh, on Wednesday and Thursday, the 13th and 14th inst., is expected to be of great magnitude and excellence, preparations having been made for submitting the best examples of cultural skill in the kingdom. The schedule includes 160 classes, or about ninety for fruit, fifty for plants, and twenty for vegetables. Without being of startling magnitude the prizes are liberal throughout, and sufficient to induce a brisk competition. If the Exhibition is even nearly equal to the grand display of 1875, the year of the last Edinburgh International, it will be worthy of a journey from the most remote parts of the kingdom by all who are interested in horticultural pursuits. A visit to the beautiful northern city is a treat in itself, and all the more enjoyable since Scottish horticulturists are proverbial for their courtesy and hospitality. We advise all who can do so to arrange for an inspection of the coming Show. Gardeners especially will admit the excellence of the rule under which they and their assistants are admitted from nine till eleven on the first day on payment of 1s. each, the Exhibition opening to the members of the Society at twelve and to the public at one o'clock.

— A CORRESPONDENT sends us the following note on *CAMPANULA PYRAMIDALIS*:—"This species, both white and blue, is highly effective in the greenhouse and out of doors in the Cambridge Botanic Garden. Out of doors it is perfectly hardy, and has lately proved a valuable border plant, for which purpose it is not too often used. At the Trinity College Botanic Garden we saw it much finer, the moisture of the climate seems to suit it so much better. There it was simply magnificent, and at both places no more ornamental plant could be desired." Several plants of this *Campanula* are now highly effective in the new large herbaceous bed at Hampton Court.

— LAST week completed the three months during which the INNER TEMPLE GARDENS, LONDON, have, by permission of the Benchers, been open to the public every evening from six until nine, a kindness of which many thousands of poor children from the surrounding close and crowded districts have gladly availed themselves; and it is satisfactory at the same time to be able to state that, notwithstanding the number of children who have nightly visited the gardens, there has not been a single instance of damage or injury occasioned by their presence. The next occasion on which the gardens will be opened to the public will be for the annual show of Chrysanthemums in November next, preparations for which are already being made. The flower beds in the gardens have been very beautiful this summer, and have fully equalled those in the parks. Their condition has shown what can be done with good plants and good management of rendering gardens attractive even in the centre of London.

— THE effects of the NEW PARCELS POST have already become apparent in the lowering of parcel rates by the railway companies, which date from the 1st inst. Their tariff is for parcels of 1 lb. weight and under, 4d. for fifty miles, and 6d. for all longer distances. For 7 lbs. the charge will be 6d. for thirty miles, 8d. for fifty, 10d. for a hundred, and any distance for 1s. 6d. The post office proposes to charge 3d. for any distance for parcels not exceeding 1 lb.; over 1 lb., and not exceeding 3 lbs., 6d.; not exceeding 5 lbs., 9d.; and from 5 up to a limit of 7 lbs., 1s. Thus for short distances the large parcels can be the most cheaply transmitted by rail, but for sending small parcels, regardless of distance, the post office scheme offers clear advantages. The plan of the railway companies of charging by distance as well as by weight is probably tentative, and it is not unlikely that ex-

perience will suggest to them the advisability of charging uniform rates for given weights irrespective of distance.

— MR. FERGUSON writes as follows on RHUBARB AND ELDER BERRIES—"Amongst other things that are allowed annually to go to waste nothing strikes me more forcibly than the quantity of Rhubarb that is unused every year. Tons of it all over the country lie and rot in the gardens of both the plebeian and the patrician. This ought not to be so. First-class jams and good British champagne can be easily and cheaply made of it. Nothing that I know of is much better drinking than good, wholesome, home-made Rhubarb wine; and in the homes of the poorer classes it would be much better and cheaper than much of the bad beer that finds its way there. I wonder very much that the wholesale jam manufacturers of our great towns do not use Rhubarb for making either Rhubarb jam, or for mixing it with other fruits, in preference to some of the unstateable ingredients that go to make up that curious compound sold in the shops as jam. It would be much more wholesome than some things we know of. Elder berries are another plentiful product in many places that are not made the most of. Like Rhubarb [they make equally good wine and jelly. In fact, for coughs and colds, and for all the purposes that Black Currant jelly is used for, that of the Elder berry is to be preferred."

— AMONG recent GARDENING APPOINTMENTS we learn that Mr. W. K. Woodcock, late gardener to F. Mappin, Esq., has been appointed gardener to Mrs. Mark Firth, Oakbrook, Sheffield; and that Mr. Robert Abbey has succeeded Mr. Young as gardener to Sir Henry Scudamore Stanhope, Bart., Holme Lacy, Hereford.

— A CORRESPONDENT writes:—"Those who desire to see a GRAND DISPLAY OF TUBEROUS BEGONIAS should visit the nurseries of Messrs. John Laing & Co. at Stanstead Park, Forest Hill. For sturdiness and vigour the plants are remarkable; while their floriferousness and the great size and varied colour of the flowers produce an effect that is at once brilliant and imposing." Relative to the plants in question, the proprietors of the nursery have issued a general invitation to all persons interested in these flowers to inspect the collection, whether they are purchasers of plants or not.

— UNDER the heading of "A WARNING TO EMIGRANTS," a Liverpool paper publishes the following:—"At the Birkenhead police court fourteen men were charged with being stowaways on board the steamer *Kansas* of the Warren Line, which arrived at Birkenhead from Boston on the previous day. One of them, a gardener named Cain, said he had been in America only since June, having gone out thinking he could get plenty of work. He could only earn 4½ dols. a week, however, out of which he had 4 dols. to pay for board. Other of the men made similar statements. The officer from the steamer said, on behalf of the Company, he must press for a penalty, as it was desired to make an example of the prisoners, there being so large a number. The Magistrate said the case of the men was undoubtedly very hard, and in some cases painful, but as the owners pressed for penalties he must send them all to gaol for ten days, with the exception of one man, who had stated that he was employed on the steamer to tend the cattle. The Magistrate hoped the case would prevent people from rashly going to America."

— SOME time ago a correspondent sent us the following extract from a Durham newspaper:—"A REMARKABLE ROSE TREE.—There is growing at the New Gardens, Whitby, a *Maréchal Niel* Rose tree which is exciting considerable interest from florists and horticulturists as well as from the general public. It was planted about eighteen years ago, and the present extremity of its growth horizontally is no less than 102 feet, being 48 feet to the left and 54 feet to the right of the parent stem respectively. The average

depth of the tree is between 6 feet and 7 feet. Last year 2500 Roses were plucked from it, but this season no less than 3500 were counted by the proprietor of the gardens, Mr. H. K. Williamson. It is said to be the largest and most prolific tree of the kind in the United Kingdom." Our correspondent adds:—"It would be interesting if we could give any further information as to the tree and its treatment. Although an old subscriber to the Journal, I do not remember having seen any record of a similar thing."

— THE value of FRUIT-GROWING, says a daily paper, seems to be understood in the eastern counties. In one district the production of Gooseberries has been of late years greatly developed. The present has been a prolific and a profitable season, and the prices obtained for crops on the ground have ranged from £70 to £100 per acre. The raising of Gooseberries has been evidently stimulated by the demand from the north of England for the raw material for the manufacture of champagne.

VIOLETS IN FRAMES.

"A GOOD Violet frame is always a centre of interest in gardens," wrote the prompter of the remarks that will be given upon this subject, which are written in hope of meeting the request for information regarding the treatment of Violets for winter blooming from a correspondent ("C. R. W."), who has a two-light frame with a good selection of Violet plants thriving in their summer quarters, including *Victoria Regina*, *Lee's Argentea*, *London*, *Single Red*, *De Parme*, *New York*, *Marie Louise*, *Old Neapolitan*, *Double Red*, *Queen of Violets*, and *Belle de Chatenay*. I have about forty varieties. It is satisfactory, however, to observe that "C. R. W." has given the names of the best for the purpose required. As there are doubtless other readers who have two-light frames and would like to have Violets in them, notes on the subject suggested by your correspondent may be generally useful at this period of the year.

I ought to state at the commencing that I have some of every sort grown here under glass from September to May, and have them outside as well for blooming in autumn, winter, and spring as the weather may favour, for, except in warm localities, such as the southern counties and near the coast, Violets are very uncertainly produced outdoors from November to March, and it ought to be stated from frames during that period should the weather be severe. Some have an idea that Violets may be gathered without hindrance through the winter from frames, but such has not been my experience. Much, nay everything, depends upon the weather. It is necessary to state this to prevent disappointment. The case is different when heated frames or pits are at command, then a supply of blooms may be had despite wind or weather if a temperature of 50° be secured by day with free ventilation, and frost excluded at night. It is further necessary to observe that Violets delight in moisture, never damping except in a close atmosphere, which last points to the need of liberal ventilation; and they like rich soil—such as is afforded by decayed leaves and manure, while the footstalks and substance of the flowers are improved by the presence of calcareous matter. The disposition to flower and their continuity are also dependant upon the texture of the soil. If it be loose the plants will make a great amount of foliage with long petioles, the flowers being small, few, and unsatisfactory. But the soil being rich and firm the plants will make sturdy short growth and develop crowns, from which in due season will spring a profusion of large flowers with stout stems, long-lasting, and of great beauty and fragrance.

With these preliminary remarks I will endeavour to answer "C. R. W." in the order of his queries.

1st, "The best aspect and inclination for the frame?" The best aspect is south, and the inclination one at which the water will pass off readily from the lights; our lights have an angle of 30° to 35°. The site should be sheltered; if it have a hedge or wall to the north so much the better, for the warmer the situation the greater prospect of having Violets in winter or during unfavourable weather. It should also be dry; at least means should be adopted to prevent the bed becoming saturated by heavy rains or the melting of snow.

"The drainage, depth of manure, proper soil, and distance between the plants and from the glass?" If the site be dry, so that water percolates through it freely, no drainage is necessary; but if wet, about 6 inches of rubble or the coarse siftings of ashes will meet every want as to drainage. The depth of manure should be about 3 feet; stable manure and leaves in equal proportions answer satisfactorily by affording a very gentle heat. Loam with

the turf reduced and of medium texture is the most suitable soil, adding a third of well-reduced leaf soil or manure thoroughly incorporated, and of a depth of 6 or 8 inches, according to the size of the plants. The distance between the plants will depend upon their size and the variety. Such strong growers as Victoria Regina require a distance of at least 9 inches every way, and strong crowns more, whilst the Neapolitans, New York, De Parme, and Marie Louise will not require more than 8 inches, and smaller plants about 6 inches. All that is necessary is to keep them from being very much crowded, placing them so that there will not be much bare soil or waste space. The distance from the glass—i.e., the soil, should for the smaller-growing sorts be 9 to 12 inches, and for the stronger 12 to 15 inches. Violets may also be grown in frames without a bed of fermenting materials by placing a layer 4 inches thick of decayed manure and leaf soil on the ground, covering this with the compost at the depth recommended above.

"The time and mode of planting?" Early in September is the best time for lifting the plants, as they will then have completed their growth and ripened the crowns so as to have commenced flowering—in fact, we have picked flowers of New York, Venice, De Parme, Princess Louise, Duchess of Edinburgh, and Marguerite de Savoie since the beginning of August; and Argentæflora (Lee), Devoniensis, and Russian forms since July. The plants should be lifted carefully, preserving as many roots with the soil adhering to them as possible. Place the soil firmly round them and about the crowns, giving at once a thorough soaking of water, shading for a few days if the sun be powerful, and sprinkle the plants every morning when shading is likely to be necessary. This will keep them from flagging and prevent the leaves turning yellow prematurely. The lights must not be placed on for the present, but the plants exposed as much as possible to air in dull weather and to night dews.

"Ventilation, watering, and general after-treatment?" The lights are not to be placed over the plants until frost, or say in October, then they are to be drawn down or off whenever the weather is mild or when the temperature in the frame from sun heat is over 50°; indeed too much ventilation cannot be given when external conditions are favourable. We open our frames when the temperature is about 40° outside, and always ventilate a little in dull mild weather constantly. During frost protecting material should be placed over the lights at night, and removed in the morning if the day is likely to be sunny; but should the day be frosty or the sky overcast keep the frames covered as long as the frost prevails. No harm will result from the plants being in the dark, and if frost affect them do not uncover until a general thaw commences. If the sides of the frames be banked up with leaves they will assist in protecting the plants. In spring also free ventilation by day and protection from frost at night will be needed. The plants should be examined occasionally for the removal of yellow or decayed leaves, and in the case of single-flowered varieties the seed pods must be removed directly the flowers fade. Water will not be required much in winter, if indeed at all, but the soil must not be allowed to become dry, giving when needed thorough supplies. As spring approaches more water will be necessary, and weak liquid manure will help them greatly, keeping it as much as possible from the foliage. Slugs are very fond of the flowers, and should be guarded against by dusting with soot or searching for them after dark with a lantern. Green aphides sometimes attack Violets, and are best destroyed by fumigation, as they fix on the young growths and curl up the leaves, being difficult to reach with an insecticide. I have used nicotine soap 4 ozs. to the gallon, applied through a rose watering pot advantageously.

"The best kinds of Violets?" This is a poser! I give my experience first as to the kinds named by "C. R. W." Of single varieties Victoria Regina is unrivalled as a purple for autumn, winter, and spring blooming, and a good light sort is Argentæflora, which, with its runners, gives more flowers over a longer period than any Violet. London is a good pale purple or bluish-coloured variety, and only objectionable from its short footstalk and small flowers. With but one frame I should not grow any of those by that means, but place them in a position where protection could be given them in severe weather and on frosty nights. Double Red and Single Red are pretty, that is all, and spring bloomers. De Parme, New York, Marie Louise, and Neapolitan will give "C. R. W." the greatest satisfaction from his frame, and those I should plant in it, having a few plants of Queen of Violets and Belle de Chatenay, both of which are spring-flowering varieties, and when in good condition lovely, being only eclipsed by Swanley Queen—a gem—fine in form and pure in colour, white, perfect double rosettes, and delightfully fragrant.

Other single varieties of great merit may be mentioned—the

beautiful and very free Devoniensis, an autumn flowerer; Princess of Prussia, with finely formed large flowers, and an autumn bloomer; Prince Consort, the prince of single purple Violets, blooming with Victoria Regina; and Odoratissima, that flowers grandly in spring, to which must be added White Czar, very pure and good for pots. The Russian family, though free enough in autumn and winter, are deficient in quality, though the number may compensate for that. New York, Marguerite de Savoie, Venice, Duchess of Edinburgh, and Princess Louise are all good, differing but little, but still so much so as to have distinct features, yet they clearly came from one type, and all are first-rate, having large, sweet, double flowers freely produced from August to May in favourable weather. De Parme and Marie Louise are of a lighter colour, more white in the eye, without the splash of red, and bloom from autumn to spring. Belle de Chatenay cærulea is a fine double blue, larger than King or Double Russian, with a long footstalk, and it blooms in spring.—G. ABBEY.

THE EALING NURSERIES.

HAVING visited the above-named branch nursery of Messrs. Charles Lee & Son of Hammersmith, a few brief notes may interest those who are unacquainted with the establishment.

In an orchard house there were about eight hundred pyramid Peach trees in pots in robust health and models as to training. Condor was considered a variety of great excellence. In the herbaceous ground fifty varieties of Phloxes were represented, the trusses being grand, two which attracted my attention being Hercules, bright cerise, and Madame Rivers, very rich magenta. Pyrethrums are also grown in great variety, and for supplying cut flowers are indispensable; the stock consists of forty varieties. Aquilegias also receive much attention, but the best of them are A. cærulea and A. chrysantha. Amongst Delphiniums conspicua is considered the best, but several beds of seedlings coming into flower promised spikes of great merit. Helianthus major is a most effective plant for borders, and also valuable for cutting from. Helianthus orgyalis has strange foliage, but was not in bloom. Bocconia cordata, of which there were good clumps, is a grand-foliaged plant, and very ornamental as specimens on lawns. Geum coccineum flore-pleno is a good hardy plant, rich in colour, and remains in bloom a long time. Iris Kämpferi in variety is also largely grown; an old friend I had not lately seen being Chelone barbata coccinea, a compact plant with long spikes of bright scarlet flowers. The Chrysanthemums in pots, of which there are over one hundred varieties, promise to be exceptionally good. Single and Pompon Dahlias are largely grown; White Queen and alba among the single varieties are grand, but much alike.

Amongst the Pinks, Mrs. Sinkins, which is not yet much known, is a good variety, with large white flowers and highly fragrant, the habit also being good. The principal walk in the nursery is 700 yards long; fine specimens of Yews, Cupressus, Wellingtonias, and Deodars are planted on each side.

Roses and fruit trees in open quarters are largely grown, forty thousand of the former being worked this season, twenty thousand being on the seedling Briar, the ground devoted to the above being 25 acres. Ten thousand pyramidal Pears on the Quince stock are very promising; being regularly transplanted have made short-jointed wood, which will not fail to ripen well. Such varieties as Louise Bonne of Jersey, Beurré Hardy, Beurré Diel, Beurré Superfin, Doyenné du Comice, Fondante d'Automne, and Marie Louise d'Uccle are bearing fruit of good size. In Apples Chiswick Codlin, Cellini, Hawthornden, Lord Suffield, Ecklinville Seedling, Stirling Castle, Gloria Mundi, King of the Pippins, Northern Greening, and Norfolk Beefing were fine, small trees bearing good fruits.

The trained Peach, Cherry, and Plum trees were models of culture, and there was scarcely a trace of black fly. Where space exists between the rows of fruit trees choice varieties of annuals and vegetables are grown for seed. Cleanliness and order prevail here under the able supervision of Mr. Cannon.—J. S., KNOLE.

SHOULD A MONEY VALUE BE ASSIGNED TO MAGNESIA IN A MANURE?

IN your able review, at page 135 of the *Journal of Horticulture*, on the Potato experiments carried on during 1881 at the Munster Farm, you recommend to your readers that they should study Mr. Carroll's report for themselves. I have done this, and I am much obliged to you for the recommendation. The report is of the greatest interest to anyone seeking any information on the action of potash. In your review of it reference is made to a falling-off in the crops obtained in the Sussex experiments when magnesia was withheld. I am not surprised at this result. (See my letter, page 416, No. 102, of the *Journal*.) I hope you will allow me to offer a few further remarks on this subject; and the more so as I shall by so doing advance a step, I hope, towards convincing your esteemed correspondent, Mr. Taylor, that I cannot be said, with all my respect for them, to believe chemists are "infallible." My real opinion, indeed, is that they have much

more to answer for than arises from their low estimate of earth-closet manure. By constantly neglecting to assign any value to potash in manures (it is usually lumped in with soda, as "alkaline salts, magnesia, &c."), and by disallowing all money worth for magnesia, they are delaying the progress of scientific agriculture as much, perhaps, as they have done by their eccentric valuations of different forms of phosphoric acid. A friend remarked to me a few days since when discussing this subject, "Chemists have been far too much accustomed as a body to exalt the merits of nitrogen and to depreciate the effects of potash, magnesia, and other fertilisers. They have apparently been caught by the rapid show which nitrogen produces, but which is after all a mere flash in the pan, accompanied, unfortunately for the future prospects of the country, by a most impoverishing effect upon the soil. The fact is, the whole question of the valuation of manures requires revision." But on this occasion I wish to confine my remarks to magnesia only, to which I now return.

Ville, in his admirable treatise on "Artificial Manures," does not, I venture to think, write on this subject with his usual judgment. He found, as your review above mentioned indicates to have been, to some extent at least, the experience in Sussex, that the omission of magnesia from the soil and manures used produced disastrous effects. Ville quotes from Davy the analysis of six soils, in one only of which magnesia does appear to have been present; and he also quotes an analysis by M. Rivot in which only traces of magnesia occur; and yet he tells us that he excludes magnesia from his manures, as also some other ingredients, "because the soil is provided with them naturally." But this is true likewise of ingredients which he thinks it most essential to add. The real question is, Do these ingredients occur in the soil in sufficient abundance? "Every field," says Liebig (page 213, "Laws of Husbandry"), "contains a maximum of one or several, and a minimum of one or several, nutritive substances. It is by the minimum that the crops are governed, be it lime, potash, nitrogen, phosphoric acid, magnesia, or any other mineral constituent: it regulates and determines the amount or continuance of the crop." And again (page 72) he says, "To be productive in the fullest sense of the term, a soil must be able to afford food at all points in contact with the roots of plants; and however small this quantity of food may be, it must necessarily be distributed through every part of the soil." Now it is a noteworthy fact that very generally (with the exception apparently of the soils analysed by Sir H. Davy at a time when analytical methods were comparatively imperfect and the magnesia may have been overlooked) "barren" soils are deficient in magnesia, whilst "exceptionally fertile" soils contain it in abundance. (See analyses given at pages 519-527, Johnson's "Lectures on Agricultural Chemistry and Geology." The evidence is the stronger, perhaps, since Johnson's attention does not appear to have been attracted by this point.)

Liebig, again, in his "Natural Laws of Husbandry," (pp. 257, 258), shows that the seed ashes of plants such as Wheat, Peas, Beans, and Rape contain larger proportions of magnesia as well as of potash than is found in guano—that most valuable of all manures. And he urges upon his readers the importance of the part which magnesia appears to take, not only in the formation of seeds, but also (in common with lime) by influencing perhaps "the presence of the soluble nitrogenous compounds (albumen and casein), or of the insoluble (gluten or vegetable fibrine)."

It appears from the experiments which were made in different localities in 1842 on cereals, Turnips, Potatoes, and Clover at the instance of Professor Johnson, that these views of Liebig were supported at least by practical results, as the use of sulphate of magnesia proved to be very advantageous in all cases. And we know that Messrs. Lawes and Gilbert, in their Rothamstead experiments, always made this salt a constituent of their "mineral manures," a practice followed also by Voelcker in the trials at Woburn. Why, then, I may fairly inquire (in the name of all the fertilisers) does not magnesia carry some value with chemists in estimating for buyers the worth of a manure? I leave it to the agricultural chemists to explain this; but I am glad to see that M. de Joulié in a paper on "Permanent and Temporary Meadows and Pastures," which was awarded a gold medal by the Société des Agriculteurs de France, and of which a translation appears in No. xxxv., part 1, vol. xviii., the last number published, assigns to magnesia a value of 3.048*d.* per lb. (or about 5*s.* 8*d.* a unit) which is nearly half as much as he assigns to potash, and almost three-fourths of the price he quotes for phosphoric acid. Have any of your contributors any definite information tending to confirm or contradict the correctness of Monsieur de Joulié's estimation?

Since writing the above I have observed in the last issue of the *Gardeners' Magazine* (August 26th, p. 453), a notice of a paper

by Mr. H. Scott of Aluwick on the "Valuation of Manures." This was read before the Coquetdale and Vale of Aln Agricultural Association, and it puts the value of magnesia at something like the same value as Monsieur de Joulié. May these indications of a growing appreciation of this too much neglected fertiliser produce some change in the valuations of our agricultural chemists, and render these valuations more worthy of the farmer's confidence as correct indications for his guidance.—INQUIRER.

HARDY PLANTS IN FLOWER IN AUGUST.

THESE are very numerous, but the following are very striking and showy:—*Scabiosa graminifolia*, a very pretty dwarf species of close growth with narrow glaucous leaves. The flower stalk rises to about 9 inches or a foot high, with capitula about 1½ inch across of a lavender-blue colour, and they last some time in beauty, and being very floriferous it is really a good plant, the foliage at all times being pretty. It delights in a dry position and sunny, the rockery being a good place for it, and in such a position it is perfectly hardy. I have found it very slow to strike; or it can be easily secured at most dealers, but it is easily raised from seed, which ripens outside. There is also another *Scabiosa* named *S. suaveolens*, and it is quite distinct from the last. It has pinnatifid leaves, and it grows from a foot to 18 inches high, probably more in rich damp soil; but I plant it on the rockery or in a dry position with poor soil, and it makes a pretty dwarf plant crowded with flowers. The flower heads are about the same size as those of the last, of a pinkish-purple colour and sweetly scented. It is easily obtained by divisions, cuttings, or from seed; but it is certainly a plant not frequently met with, although far superior to many more generally cultivated. *S. caucasica* is a much better known plant, and even more showy than either of those mentioned above. It has a tufted habit, while the flower heads are of a rich lavender or sky-blue colour, on peduncles about 18 to 24 inches high, or even more in strong soil, and when the plant is in good condition it is extremely showy—in fact, one of the best border plants now in flower, most serviceable for cutting purposes, the colour being extremely delicate.

What a very variable genus is *Phyteuma*, usually with curious heads of horned flowers! but what a strange species is *P. stylosa-stricta*! Many enthusiasts have expressed astonishment at the plant. Mr. Leo Grindon wondered at first what *Campanula* it was! No, it is not a *Campanula*, for there are not five stigmatic divisions. It is a *Phyteuma* with erect spikes, sometimes branched, about 18 inches high, of blue flowers about half an inch across, and quite open. Is it very common? I have only met with it at Messrs. James Dickson & Sons' of Chester, where there are many curious hardy plants in flower on the rockery. *Phyteuma Scheuchzeri* is one of the apparently endless kinds with spherical heads of bluish-purple flowers; but it is a very pretty one, with slender stems from 9 to 12 inches high very freely produced. There are a number of species and varieties, many of which are not found in our gardens at all, although natives of southern Europe. Some of them certainly are difficult plants to cultivate, but if care is bestowed upon them they can be established.

A plant known in many collections as *Chrysanthemum maximum* is very showy, with a bushy habit, 3 or 4 feet high, thickly covered with flower heads like very large Ox-eye Daisies, but a much stouter flower for cutting purposes and border decoration. It is really a fine plant, most easily grown and readily increased by cuttings, which root freely in a young state.

Amongst yellow-flowered Composites the two most showy are *Harpalum rigidum* and *Coreopsis lanceolata*, or *grandiflora* as it is frequently called. The former (see fig. 39) is a very showy plant, exceedingly floriferous, and of a freely branching habit. The leaves are more or less bluntly lance-shaped and rough; the capitula are from 3 to 5 inches across, with broad deep yellow rays and yellow disk florets. It grows from 2 to 4 feet high, the lesser height being obtained when planted in a dry position. It rapidly increases itself by underground stolons, which can be separated in the autumn and planted where required, as it is perfectly hardy. In the north it is now in fine character, but in the south it is much earlier in bloom—at least a month. The *Coreopsis* grows about the same height, forming a large bush crowded with flowers, which measure from 2 to 3 inches across, with fewer and broader rays than the *Harpalum* and thinner in texture, and the disk is smaller. The leaves are more fleshy. As a plant for supplying an abundance of yellow flowers for cutting it cannot be surpassed at this season; the flowers have a very light appearance, and are most useful for vases, and the plant is equally useful for the border.

Erodium carnifolium is a very pretty species of Heron's-bill. It

does not grow more than 6 inches high, with finely pinnate leaves of a deep green colour. Flowers in umbels from four to six in number, about half an inch across, of a deep magenta colour and very striking. *E. olympicum* is also very pretty. The leaves are more or less ovate in outline and finely divided, on long petioles covered with fine white hairs. Umbels few-flowered, not more than 6 inches high, with flowers of a pale lilac colour. They are both quite hardy, and flourish in a well-drained and sunny position on the rockery, and, like all the other Heron's-bills, they are charming rock plants. They are readily increased by cuttings,

which can be rooted in a cold frame if a portion of the old wood is left upon the cutting, or they can be raised from seed. Neither of these species were noticed in the article on *Erodiums* which appeared recently in the Journal, although quite as pretty as some there described.

Not many of the *Primulas* are in flower just now. *P. involu-crata* is, however, very pretty, with smooth foliage and slender peduncles from 6 to 9 inches high, terminated with an umbel of pure white sub-pendulous flowers about half an inch across, freely produced. It is a very attractive species, very similar to *P. Munroi*,



Fig. 39.—*HARPALIUM RIGIDUM*.

which I am not certain is not a variety of it. They are both from the Indian Mountains, and the difference between them scarcely warrants specific distinction. Among other *Primulas* in flower for the second time are *P. Cashmeriana*—(Is not this *P. purpurea* of Royle? Judging from specimens I have examined in the British Museum I should think the plants are identical)—*P. capitata*, *P. decora*, *P. ciliata* in various forms, and the charming double yellow-flowered *P. auricula*. The latter is always welcome, as it is certainly a most beautiful plant of easy culture and sweetly scented.

Amongst bulbous plants noticeable are *Colchicum speciosum*, which is a very lovely species. The flowers produced by the bulbs under notice are about 6 inches high, of a clear magenta

colour, not so deep as some of the varieties I have seen, as it is an extremely variable plant in point of colour, but always very charming. The varieties of *C. autumnale* are also cropping up, and will soon be in full bloom. These are all very showy, as well as all the other *Colchicums*. *Allium pulchellum* is pretty; the flower heads are not so crowded as in many of the species, with pendulous flowers of a pinkish-purple colour. It is very dwarf in habit, growing not more than 9 inches high either in pots or planted out. *Crocus aurea* is very bright with its racemes of orange-red flowers freely produced, and as the plants are well established they are particularly attractive in clumps or in large pots. By the side of it is the curious-coloured *Alstromeria peleriniana*, with its umbels of cardinal red and green tubular flowers.

This is an old-fashioned and very interesting plant, thriving well in a warm border.

There are several *Liliums* in flower. *L. Batemanniae* is an especial favourite. My plants are about 18 inches high, with four to five flowers in an umbel; each flower about 4 inches across, open, with the perianth divisions but slightly reflexed, of a deep orange-red colour without spot or markings. It is certainly one of the most lovely *Lilies* grown. *L. Leichtlini* is also good. Some cultivators prefer it to the last, and it is quite distinct from it. The flowers are rather wider across and solitary, pendulous, with more sharply reflexed divisions of a clear lemon colour freely spotted with chocolate brown. *L. longiflorum eximium* is certainly superior to the typical form, the flowers being much larger and stouter in texture, and pure white. For outside culture this is a very excellent *Lily*, and deserves much attention. The various forms of the Tiger *Lily* (*L. tigrinum*) are now out in full bloom. The variety *Fortunei* is particularly stately and free-flowering, and deeply coloured. The double-flowered form is very handsome, and lasts much longer than the single varieties.—T.

THE LONDON PARKS.

HAVING referred last week to the floral decorations in the great park in the west end, we have to notice now what is provided of the same nature in the extensive enclosure in the northern district of the metropolis. Here trees and shrubs abound, and form a fine feature; but their contiguity to flower beds and borders does not conduce to the floriferousness of plants nor heighten the colours of flowers and foliage. Still, even in regard to these there is much that is excellent in the first of the parks now to be noticed, while the other great floral rendezvous at the east end has long established its fame for the beauty of the designs and the bright masses of flowers in the beds. Hardy plants are extensively grown, and in their season are highly attractive in the great extent of borders that margin the shrubberies.

REGENT'S PARK.

Since the early part of the season the appearance of this park has greatly improved; and although it is never possible to make a very brilliant display, as plants do not thrive there as they do in more open and less smoky districts, yet several beds and borders are noteworthy and effective in no ordinary degree. It is observable, however, that the *Alternantheras* have not coloured well, for though they have made good growth they are very deficient in the quality which usually renders them so useful in carpet beds. Even the golden form of *A. paronychioides*, which is in excellent condition in most places this season, at Regent's Park is scarcely distinguishable from the ordinary green kind. Probably this want of colour is due to the beds being so much shaded by trees, for without full exposure to the sun these plants rarely assume their distinctive tints in a satisfactory manner. With this exception most of the plants employed in the beds have succeeded well, and *Lobelias* are especially good, both *Blue King* and *Emperor William* being densely flowered. The latter is uncommonly fine, two lines in a ribbon border being a mass of bright blue flowers, the clearly defined white centres of which seem to show up the intense blue to better advantage. The plants of this variety, too, are of compact close habit, admirably fitting them for margins to beds. Except in the case of a few varieties the *Pelargoniums* are slightly deficient in the number of flowers. Mrs. Turner, a good pink-flowered variety, is the most notable exception, this being in first-rate condition; but the usually profuse *Vesuvius* is comparatively dull—such are the depressing effects of an unfavourable locality for bedding, and which the utmost skill cannot contend with successfully.

Near the centre of the flower garden the parallel quadrangular beds by the large vases are very attractive. The centres of these are *Flower of Spring* or *Gold Leaf Pelargoniums* alternately in adjoining beds, surrounded by bands of *Coleus Verschaffeltii* or *Iresine Lindeni*, these being margined with a broad band of *Lobelia Blue King* and edged with *Antennaria tomentosa*. Opposite to these is a series of circular beds containing crescent-shaped or circular panels of *Flower of Spring* and *Gold Leaf Pelargoniums* on a ground of *Iresine Lindeni* or *Coleuses*. Around the vases are beds of *Alternantheras*, in which triangular beds of *Mesembryanthemum cordifolium variegatum* appear to excellent advantage. Several carpet beds of excellent designs are rather ineffective from the cause named above—viz., the want of colour in the *Alternantheras*. A ribbon border already referred to, in which the *Emperor William Lobelia* is so fine, has also lines of *Coleus Verschaffeltii* and a background of *Pelargonium Mrs. Turner*. This is one of the most striking and pleasing borders of the kind in any of the parks this season, and proves the value of simple combinations when judiciously arranged. On the opposite side of the broad central walk is another pretty ribbon border of *Ageratums* and *Pelargonium Vesuvius*, and near this is a peculiar bed of mixed scarlet, crimson, and pink *Pelargoniums* margined with *Gazania splendens*, which may claim attention for its novelty.

Subtropical bedding is not largely attempted here, but several fine clumps of *Ricinus* are noteworthy. *Cannas* have not made sufficient growth, but the specimens of *Musa superba* which are freely em-

ployed are in fine condition and very effective. One bed of *Ferdinandia eminens*, a most distinct plant when in good condition, though perhaps less so than the *Wigandias*, is striking, the central plants of the above being surrounded with *Lobelia fulgens*, scarlet *Zonal Pelargoniums*, *Tropæolums*, and *Santolina incana*. An effective bed of succulents, chiefly *Agaves* and *Sempervivums*, on a ground of the *Gibraltar Pennyroyal* edged with *Pyrethrums* and *Echeverias*, is also noteworthy.

The condition of the park generally is very satisfactory, the turf being in excellent condition and the shrubs thriving, the *Bladder Senna* apparently succeeding better than any, and it is now bearing abundance of its peculiar pods.

VICTORIA PARK.

Probably none of the metropolitan parks is more appreciated by the surrounding residents than this; and anyone who has visited it on a Saturday afternoon, Sunday, or any general holiday would fully understand the benefits conferred upon the mechanics and others who are so numerous in that neighbourhood by so convenient and pleasant a resort. Everything is done to render the park as bright and cheerful as possible, and with no mean degree of success, as is well testified by its popularity and the admiring crowds which gather round the brilliant beds of *Pelargoniums* and other flowers in various portions of the park. What are known as the "Prince of Wales' Feather" beds are a particular source of attraction, and this year they are especially gay, scarlet and pink *Pelargoniums* largely predominating in the design—perhaps too largely for those who prefer quiet harmony and diversity of tints. As regards abundance of blossom, however, they leave nothing to be desired, and as they appear to delight the most numerous portion of the frequenters of the park the chief object of the management is attained.

Victoria Park is famed for its carpet beds, and as usual this year we note several tasteful and effective designs. The large scroll bed near the subtropical garden has a ground of *Mentha Pulegium gibraltarium*, in which are numerous small heart-shaped panels of *Alternanthera aurea* very well coloured, margined with *A. amœna* and *Echeverias*. Raised circular panels of *A. versicolor grandis* edged with *Mesembryanthemum cordifolium variegatum* and two rows of *Echeverias* are also pretty. Panels of *Coleuses* and *Alternantheras* with single plants of *Echeveria metallica* and *Sempervivum tabulæforme* are freely employed, the centre design being an ellipse of *Alternanthera amœna* and *A. versicolor grandis* margined with *Golden Feather* and *Echeverias*, the whole bed being edged in a similar manner. On each side of this is a four-lobed bed that is even more effective than the preceding. The ground consists of the dark green *Herniaria glabra*, with centre circles of the *Gibraltar Pennyroyal* and a raised cross-like panel of *Alternanthera grandis*, *Golden Feather*, and *A. amœna* edged with *A. paronychioides major* and *Echeverias*. In other parts of the bed are panels of *A. aurea* and *A. amœna* and the *Echeverias*. Both the beds are planted alike, and the contrast of bright colours with the dark ground is very pleasing, and far more striking than where the lighter *Mentha* is employed. Circular beds of *Alternantheras* tastefully combined, and circles of *Pelargoniums* and *Lobelias*, render this series of beds extremely attractive. They are thoroughly well kept, all the designs being as clearly defined and as well filled as possible.

The subtropical garden is in excellent condition, large beds of *Ricinus*, *Cannas*, *Nicotianas*, *Ficus elastica*, and *Wigandias* being very effectively employed. The *Wigandias* are especially vigorous, with broad handsome leaves, and more telling plants for this department can scarcely be found when they are in good condition. Very healthy young *Ficuses* are also abundant, and though they have a somewhat formal appearance they are valuable plants for such beds. All the others are similarly healthy and strong, the general surroundings being in admirable keeping with the style of the bedding.

NOTES FROM NORTH DURHAM—PERPLEXITIES OF SHOWING.

WE are now in the midst of the flower-show season, and we have the usual grumbling and disqualifying. I have often pointed out the desirability of having some recognised standard or authority for the regulation of flower shows. Every society seems to go on like the famous Scot who "fought for his ain hand," and every society manages to word and construct its schedule and its rules so that it gives any amount of scope for the touchy and the litigious exhibitor to carp and criticise over. One local society offers prizes for the best "tray" of vegetables, and because one exhibitor displayed his produce without a tray at all—showed them, in fact, on the benches provided by the society—and was disqualified he grumbled, but not more than did another one who made use of the orthodox "tea-tray" to show his products upon, because the winner exhibited a collection staged upon a wooden tray made especially for the occasion.

Another prolific cause of dispute is the meaning of the term "amateur." Is a working or a professional man, who has a small garden which he uses for his own pleasure and in his spare moments, to be deemed a professional gardener because he sometimes sells his spare stock of various things, or it may be disposes of the whole

of his stock of exhibition plants of certain sorts to take some "new departure?" or ought a man who grows exclusively for sale and for exhibition to be deemed an eligible competitor in a class set apart for gentlemen's gardeners or amateurs?

What is meant by "artificial means" in the "setting up" of flowers? I noticed at many of our local shows that the bouquets were more like anything rather than natural or artistic combinations of flowers, wire and wool being so obtrusive as to deprive them of all the charms that bouquets ought to possess, and "button-hole" arrangements bristling with wire are getting as common as they are objectionable. Ought such artificial monstrosities to be encouraged? Equally obtrusive are the paper collars used by many florists for staging their flowers in, and surely the practice is reprehensible of "wiring" blooms to such plants as *Lapagerias*, *Allamandas*, and *Dipladenias*. Do not all these practices come under the category of "artificial means?"

Selections of words can be taken from nearly all schedules to which exception might be taken. For instances, "dish," "plate," "basket," &c. All these leave room for raising a quibble. All analogous words or terms should be carefully eschewed and eliminated.

All the flower shows that I have been at this year where *Roses* were shown proved the superiority of Alfred Colomb, if that can be judged by the decided advantage that it showed over all others both in point of numbers and in the form in which it appeared upon almost every stand.

A feature at one show was cut blooms of *Tuberous Begonias*. At another cut blooms of single *Dahlias* shown on moss with their own foliage and buds as *Roses* usually are. These were shown by Mr. Sibbald of Bishop Auckland and Messrs. Fell of Hexham respectively.

A respected clergyman in our neighbourhood, who used to hold a flower show for his parishioners, has just told me that he does not intend to hold it this year, because, he says, the whole thing was a huge cheat and a sham from beginning to end. Next year he intends to distribute amongst such as care to have them seeds and plants that can be cultivated by the persons who receive them, and then at a reasonable time he will offer prizes for the best grown examples of the various things he distributed amongst them. This he expects will give a much more healthy tone to window and town gardening than the mere getting by any means a good plant or a good flower for the "show day."—PETER FERGUSON.

ACHILLEA PTARMICA FLORE-PLENO.

MUCH is written on hardy border flowers, and many plants are recommended from time to time for their effectiveness in the garden and their usefulness for cutting from for vase decoration. I have several hardy herbaceous plants, but I do not think that any one of them has given more satisfaction this summer than the plant under notice. For ten months the clumps have been dense masses of purity, composed of thousands of miniature, perfectly double, and pleasingly symmetrical flowers. Though the flowers do not exceed a quarter of an inch in diameter they are so numerous as to produce almost an imposing effect, while the sprays, large or small as may be desired, can be used for bouquets and room ornaments, from the smallest finger vase to a large trumpet vase. Then the plant is so accommodating that it will almost grow anywhere, while it spreads and increases with rapidity. When the growth first appears in the spring there is not much to look at, and it is almost marvellous to see what a number of flowers are eventually produced by such slender shoots. I consider it a border plant of the first order of merit, requiring no protection and no care except to prevent it spreading too far and encroaching on space that it is undesirable it should occupy. I find it a good plan to dig up the outside portions in the spring when the growths are an inch high and plant them where required, as if left alone the soil becomes exhausted and the central growths weak and unsatisfactory.—A SUBURBANIST.

TOMATOES FOR WINTER AND SPRING.

AS Tomatoes have rapidly gained favour with nearly all classes of society my subject must be a popular one, and no apology is needed for broaching it. The wealthier classes have long been familiarised with them, and this may have something to do with their comparative indifference to Tomatoes, more especially as a salad, this indifference probably arising from the fact of the first attempt being made with imperfectly ripened fruit. Now Tomatoes have only recently been extensively grown under glass, and are seldom ripened to perfection in the open air; indeed, it is doubtful if for quality they ever equal house-grown fruit. It is generally admitted the taste for this esculent must be acquired,

consequently the start should be made with perfectly ripened fruit; and later on, if this cannot be had, fruit of inferior quality, such, for instance, as that imported, will be relished. The recent advance in house culture has been principally made in medium-sized or small gardens, the owners of which, perhaps, have become very fond of Tomatoes, and are, besides, justly proud of their productions. Many of these have grown profitable crops during the summer and autumn, and, provided they can command sufficient heat, there is no reason why they should not grow them during the winter also. Ornamental and useful they will undoubtedly prove, and this cannot be said of the majority of the ordinary occupants of our houses during the winter months.

Cuttings may be struck or seed may be sown at the present time for the winter and early spring crops. The former should be well-ripened top shoots, taken off about 6 inches in length, trimmed at the lowest joint, dibbled in thinly round the sides of well-drained 6-inch or 8-inch pots, and placed either in a warm frame or a handlight in a heated house. They should be watered in and be kept moist, but not saturated, and should not be damped overhead; and if much moisture condenses on the glass air should be admitted for a short time every morning in order to properly dry the glass and foliage. They require to be shaded from bright sunshine till struck, after which the plants must be gradually exposed to sun and air. The cuttings to be preferred are the strong yet well-matured tops of plants grown under glass; and those to be avoided, as being liable to damp off, are the gross shoots often formed on plants grown in the open. Light loamy soil is suitable for cuttings or seeds. The latter may be sown thinly either in pots or pans, and placed in heat till germinated, after which the plants require to be disposed near the glass to make them sturdy. Thin out where at all crowded, and when the rough leaves are fairly visible pot off singly in 4-inch pots, or in pairs in 6-inch pots, sinking the stems up to the seed leaves. This will tend to keep them dwarf, and the buried stems rooting freely materially strengthen the plants.

Various methods of fruiting Tomatoes are adopted, these being, or ought to be, in accordance with the intended sites. We have fruited them singly in 11 and 12-inch pots, or in pairs in larger pots, in any rather flat common boxes available, and planted out in ridges of soil as we treat Cucumbers. They are grown on the front, side, and central stages, and staked, or in the two former positions tied to wires disposed across the roof or ends as the case may be. We have also utilised the back walls of forcing houses for the purpose. In each case the result has been most satisfactory, and what we can achieve is equally possible to others if they choose to make the attempt. As compost we prefer roughly broken turfy loam with a liberal addition of decayed manure, but it is possible to grow excellent crops of fruit or plants rooting in ordinary well-enriched garden soil. It should always be remembered the Tomato loves good living, and, no matter how planted, is benefited both by frequent supplies of liquid manure and occasional top-dressings of rich compost, the latter being quickly taken possession of by the roots. Those who are unable to procure farmyard liquid manure are advised to give the "Crown Manure" or some other artificial manure or guano a trial, using these at the strength recommended by the vendors.

Although our plan is to grow and fruit the young plants with single stems, rubbing out all side shoots as they form, and stopping beyond the second or third bunch of bloom, and allowing the leading shoot following to extend and fruit, this is not necessarily the only or best method; but as a rule heavy crops can be had in this way without unduly shading the other occupants of the house. Unless the house is devoted principally to them they should be disposed at least 2 feet apart; but if they are of primary importance and plenty of root room is provided they may be planted closer. If preferred fewer plants may be thus grown, these being disposed 2 feet apart, and second growths from the base may be laid in and fruited. It is also easy to fill a house with one or two plants, much after the manner of trained Cucumbers. For this method plants that have been previously fruited in pots or boxes are available. These should have their balls slightly reduced, and be shifted either into larger boxes or small pits about 2 feet square and as much in depth, which may be formed with loose bricks, allowing room in both instances for top-dressings. When this reserved space is filled further top-dressings may be given if a rim is formed with slates or boards in the first instance, or more bricks in the other. Such plants, if kept thinned out and stopped occasionally beyond the bunches so as to gradually occupy the allotted space, prove very remunerative.

From the commencement in every case the plants should never be allowed to become dry at the roots, and should receive light airy positions as near the glass as possible. Syringing must be avoided, and at times when many flowers are expanding the fruit

may fail to set unless the atmosphere of the house be kept rather dry. We grow a variety of fine-foliaged plants and Ferns under our Tomatoes, the temperatures of the house ranging on most occasions from 55° to 60° by night to 60° to 65° by day, the ventilators being slightly opened for a short time towards the middle of every mild day. In this manner, and by attending closely to the watering with tepid water varied with liquid manure, and top-dressing whenever exhaustion is apparent, that healthy growth can be maintained which may be relied upon for perfecting moderate crops throughout the winter and spring, or till such times as the house may be wanted for other purposes. We make three annual sowings; the first in January for plants to be fruited in pots during April, May, and June; the next in April for plants to be fruited in boxes in Peach and other somewhat cool houses during July, August, and September; and the last in August or early in September for the winter supply. Any fruits of the late autumn crop there may be unripe in October are cut and hung up in bunches in a warm house to ripen, and these and any we may cut green at the end of September from the few we have on the open walls and ripened similarly prove of service in maintaining the supply till the house-grown produce is fit to use. Tomatoes may also be ripened in boxes placed before the kitchen fire whenever convenient, or on a rack at a safe distance above the fire.

Not a little depends upon the choice of varieties. After having tried all the catalogued varieties we have arrived at the conclusion there are none to equal the old corrugated sorts for house culture. The newer varieties, principally of American origin, are nearly all very smooth, large, and handsome in appearance, but for quality and fruitfulness are inferior to such as the old Large Red, of which there are some excellent selections offered, the best probably being Earley's Defiance. The Dwarf Orangefield, if obtained true, will be found very productive and good in quality, and the same may be said of Keye's Prolific. The Conqueror, a ribbed American variety, is very prolific, grows to a good size; while, if a smooth sort is preferred, Hathaway's Excelsior is recommended. Selected kinds of Trophy or its synonym are the worst that can be grown, as but few succeed in setting good crops, and connoisseurs do not admire the quality of the fruit.

A difficulty is frequently experienced in setting good crops during the dull autumn and winter months even with notorious free setters. Every care should be taken that the plants receive no check in any way, and by closely rubbing out all superfluous growth the bunches of bloom will be encouraged to develop strongly. A drier atmosphere maintained and frequent smart taps given towards midday or about an hour after air has been given will distribute the pollen and ensure a good set. If this fails the blooms may be lightly touched over with a camel's-hair brush. We invariably secure good sets; in fact find it necessary to thin out the bunches, as a constant if comparatively light supply is preferable to occasional gluts, which result if extra heavy crops are allowed to mature at one time.—W. E. G.

MANURE FOR VINES—CRITICISM.

No one rejoices more than myself to be informed that the quality of Standen's manure is not lowered, for I do not like losing an old and trusted friend.

That a parcel I had last spring was faulty I am certain, but it is satisfactory to know that, as far as the proprietors can guarantee it, "the ingredients and manipulation are precisely the same as when introduced twenty years ago."

"INQUIRER," I think, is hardly fair when he makes it appear that I "once thought I could grow Vines as well without lime as with it." Of course I knew before I commenced that lime was a necessity for Grape culture; my error was in thinking there was already sufficient lime in the natural soil, and which I owned that I ought to have found out before, as there was plenty of evidence to the contrary. But having voluntarily exposed my weakness in this and other points for the purpose of exposing learners falling into similar errors, I did not expect men of the calibre of "INQUIRER" to take advantage of it by rather enlarging on the facts and holding me up to ridicule.

Again, as to the quality of Standen's manure. Although there was only two months between the two statements appearing in the Journal, there was a much longer time between the writing of them, and there was a difference in a whole season as to the results spoken of.

Of course I do not expect to convince your correspondent as to the value of earth-closet manure in the face of the evidence of the great authorities he mentions; but I may tell him there are many practical men who could say much in its favour, and my faith in it will tempt me to use it and wood ashes alone to a portion of my Vines till such time as they show signs of failure, and when

that happens I will be candid, as I have endeavoured to be all the way through, and will freely acknowledge it.

I have still another critic ("J. S. W.") to notice; but as he only accuses me of dishonesty and falsehood I will merely refer your readers back to the answer given him in this Journal three weeks ago, feeling "I can safely leave the verdict with those of the public who understand such matters."—WM. TAYLOR.

[As both "J. S. W." and Mr. Taylor agree in leaving the "verdict with the public," the controversy referred to in the last paragraph of this article naturally ceases.]

TREE FERNS.

THIRTY years ago Tree Ferns were comparatively scarce in this country, and were only to be found in very large establishments and botanic gardens; but within this last twenty years I may venture to say that hundreds of tons of these Ferns have been imported, and at present a brisk trade is going on amongst our leading nurserymen in providing them to meet the ever-increasing demand.

What conservatory of any size would be complete without a pair or two of Tree Ferns and a few good-sized Palms? Anyone that has visited the Crystal Palace could not fail to appreciate the remarkably fine Dicksonias that are to be seen there, and are so well adapted for the positions they occupy, giving a cool and refreshing appearance to their surroundings. At Kew also, in what is called the temperate house, there are some grand specimens of Cyathcas and Dicksonias, and when seen from the gallery they are objects not likely to be soon forgotten. At Gunnersbury Park there was a few years ago a pair of Dicksonia antarctica, supposed to be the finest in the country, and no doubt they were. I will not pretend to give the dimensions of them here in case I may under-estimate them, for they are giants compared with what I had seen before. At Sir G. Macleay's, Pendell Court, there are also some very fine specimens.

The most useful species of all Tree Ferns is undoubtedly Dicksonia antarctica. This is by far the most common in collections, and well adapted for conservatories and cool houses. It requires little or no shade provided the temperature is not too high and will stand a little frost with impunity. The size of the stems would suggest that enormous pots or tubs would be required for their well-being, but such is by no means the case. If large or medium-sized stems are imported they may at once be placed in pots or round tubs well drained and only a trifle larger than the stem itself, so that sufficient room is given to work a little soil between the stem and inside the pot or tub. They should be potted moderately firm, using good fibry peat and loam in equal parts, with a little silver sand. After they have started freely into growth copious supplies of water will be necessary, and particularly up the stems, for good-sized Fern stems are all alive with active fibres. Care must be avoided that they never suffer from being kept too dry. In the tubs or pots that they are first placed in I have seen them remain till the tub has become thoroughly decayed, thus proving that very little pot room is necessary. The best plan, however, to grow this very valuable Fern is to plant it out, after being well established in pots, in a thoroughly drained border.

D. fibrosa, a New Zealand species, is a very useful Fern, and should find a place in all collections. It is much dwarfer than D. antarctica, the stem not attaining nearly the size of the latter. The stipes are very short. The fronds are 3 to 4 feet long, rhomboid, tripinnate; the central pinnae lanceolate, 6 to 9 inches long, the stem being covered with dense bright brown scales.

D. squarrosa, another New Zealand Fern, is a desirable species. The stipes are about a foot long, clothed with soft, spreading, fibrillose scales; fronds oblong-deltoid, tripinnate, the texture of which is rigidly coriaceous.

There are many species of Alsophila that are worth growing, but in this note I only intend to name a few of the best. A. australis is perhaps one of the most popular species in cultivation. In its native habitat it attains the height of 50 feet or more, but slender. A. excelsa, a native of the Norfolk Islands, is said to attain the height of from 60 to 80 feet, surmounted with a handsome crown of fronds. It appears to be a much larger and stouter-growing plant than the latter, both being well suited for high houses.

Cibotium, or, as now classed, Dicksonia, includes two or three species that are extremely useful and ornamental. C. Schiedei is amongst the most useful of Tree Ferns for exhibition purposes. The peculiar arching habit of the fronds give it a very graceful appearance. The fronds are tripinnate, light green above, and very glaucous beneath. It is a native of Mexico, where the stem attains the height of from 10 to 15 feet.

C. regalis somewhat resembles the above, but grows larger in every way. It is of spreading habit. The fronds often attain the length of 12 or 15 feet. The plant requires to be elevated, so as to show the fronds off to the best advantage. It is a native of Mexico, and makes a handsome conservatory plant.

*Cyathea*s are numerous, and some species in this genus are favourites with all. They are amongst the most noble plants that assist in furnishing our large conservatories. *C. medullaris* is the largest and strongest-growing of the genus: a very fine specimen may be seen in the temperate house at Kew, which for some years has been one of the greatest ornaments of that noble structure. The stipes are glaucous black; the fronds are bi-tripinnate and coriaceous. This is another New Zealand species, and thrives admirably planted out in a well-drained border, requiring abundance of water when growing.

C. arborca is a native of the West Indian Islands and is very abundant in Jamaica, therefore requiring a stove temperature. This is a well-marked plant, and attains the height of from 30 to 40 feet. I lately saw a plant at Kew that must be quite 30 feet high. The stem is rather slender, carrying a fine whorl of fronds at the head, and is covered the whole length with prominent scars formed by the old fronds.

C. insignis is one of the most useful and ornamental, and well adapted for an intermediate temperature. The fronds are dark green above and glaucous beneath. The lower part of the stipes are furnished with long glossy scales.

C. Gardneri is a Fern that should become more popular. It is supposed to be a very scarce plant, and is certainly ornamental. Large specimens can be grown in pots of moderate size provided water is freely supplied after the plants become root-bound. The stipes and around the crown of the plant is densely furnished with light brown scales. Being a native of Brazil it requires a moderately high temperature.

The above are a few of the most useful and showy of Tree Ferns. There are many others that could be mentioned, for they are all more or less ornamental and deserve more attention from horticulturists.—W. K.



HARDY FRUIT GARDEN.

CONSEQUENT upon the light crops fruit trees have required more than usual attention in stopping their shoots, this more particularly applying to bush, pyramid, and espalier trees, which have not yet ceased growing. These should now be attended to, and have the lateral stopped back to one bud so as to strengthen the buds for next season, and by admitting more light and air insure the thorough ripening of the wood. Trees that have the spurs much elongated, and are little less than clusters of sappy growths, may have such cut back to suitable buds nearer their base, as it is rare that such growths can by any amount of summer pinching be converted into spurs—i.e., fruit buds. Any trees that produce fruit sparingly and are unduly prolific of wood should be marked for root-pruning at the proper time, as the part above ground is indicative of the condition prevailing at the roots. Rooting in too rich and loose a soil can only be remedied by allowing more extension to the growths or by restricting the root-action.

Pear and Plum trees against walls are, from their light crops and the moist weather, producing much spray, which should be removed where the trees are already well furnished with spurs, as the growth stopped so late in the season and so closely cannot possibly be converted into blossom buds, and their retention is certain to be followed in the coming season by growth difficult to restrain. Trees that grow too luxuriantly for fruiting should be judiciously root-pruned, as no amount of pruning will cause the formation of fruit buds, but tends to crowd the trees with growths, which appropriate most of the alimentary matter afforded in excess by the roots.

Peaches and Nectarines.—The trees will require attention in securing the growths and stopping the laterals on vigorous shoots to one leaf of growth as made. Late kinds will need to have the foliage turned aside or shortened, so as to expose the fruit as much as possible to

light and air—the great imparters of colour and flavour. Any long sappy growths may be shortened, but this must be done carefully, or the diversion of the sap will cause the buds that would otherwise be developed as fruit buds being started into growth. Trees that have been cleared of fruit should have the older bearing wood cut out, and the wood where too crowded should be well thinned.

Where it is intended to plant new walls or renew old worn-out trees the borders should be prepared as soon as possible, so as to get the soil ameliorated before the time for planting arrives. All fruit trees thrive best in a medium-textured loam, inclining to be heavy rather than light. Where the soil is of a heavy clayey nature it would be much improved by burning part of the clay and mixing it with the surface soil to a depth of 24 to 30 inches, or by mixing with it a goodly proportion, say one part in six, of old lime rubbish and ashes. Light soils should have a good marling, mixing clay in as small pieces as possible with the soil, one part in six not being too much for very light soils, a lesser proportion being added as the soil inclines to medium texture. Soils not calcareous should have an addition of lime rubbish or chalk, one part in ten being ample for most soils. Heavy soil will be improved by a good liming, a bushel per rod not being too much. Drainage must be attended to, as no fruit tree will long remain healthy with water lodging in the subsoil. It is also necessary to make choice of such varieties as seem most likely to succeed in the locality, much disappointment resulting from indiscriminate planting, which careful note-taking and an exchange of views with careful observers in different localities would do much to prevent.

Strawberries should now, if not already done, have all runners or weeds cleared off between the old stools, and a good manuring given as opportunity offers and material is available. Where it is necessary to defer planting until spring runners should be thickly inserted in nursery beds, from which they can eventually be transferred with balls to their permanent quarters.

FRUIT HOUSES.

Vines.—The earliest-forced Vines must now be pruned, it not being necessary to wait until all the foliage falls before doing this, provided the wood be hard and brown and the majority of the leaves are turning yellow, as early pruning induces early resting. Both the house and Vines should have a good cleansing; and if insects have been troublesome the wood should be washed with soap and water, and the Vines, after removing the loose bark, be washed also, and afterwards dressed with an approved insecticide. Perhaps the readiest and most effectual means of cleansing a vinery is syringing the Vines and the house thoroughly with petroleum and water, as practised by Mr. Wm. Taylor. This is especially to be recommended where the Vines are infested with scale or mealy bug. Remove the loose inert soil from the border and replace with fresh strong loam, to which has been added some fertiliser such as bone meal or earth-closet manure, which, though so long neglected, seems destined to become an important factor in horticultural practice. Any Vines in an unsatisfactory state may be improved by partially lifting the roots, removing the old soil, and adding new, lifting and laying in the roots in fresh soil, which, however, should be done before the leaves have fallen. Keep the house as cool as possible, so as to induce complete rest.

Vines in pots intended to be placed in warmth in November ought now to be fully ripe and at rest. They should be kept rather dry, but the roots suffer great injury when the soil is allowed to become dust dry. Later Vines in pots should now be turned outside, and be secured to walls or other situations to mature the growth and insure rest.

Young Vines that have made strong growth will require a considerable time to ripen, and fire heat will be requisite with a free circulation of air to enable them to mature the wood, keeping moderately dry at the roots, but not entirely depriving them of moisture, as the buds will need plumping as well as the wood ripening. Discourage any further growth by keeping the laterals closely pinched.

Late Vines, with the object of checking further growth, should have the laterals cut back after the Grapes are perfected, and what is

needed to insure their thorough ripening should be applied forthwith—i.e., fire heat to allow of a circulation of dry warm air. Ripe Grapes should be frequently examined and decayed berries removed, a dry airy atmosphere being the only preventive of mould. If the roots of late Grapes are in outside borders it will be necessary to protect them from heavy rains by covering with glass lights, wooden shutters, or tarpaulin.

Cucumbers.—The necessity for fire heat will be determined by the weather. A minimum of 70° to 75° should be maintained in the daytime, and 65° at night. Shorter days and cooler nights will suggest earlier syringing and the earlier closing of the ventilators. Encourage the autumn fruiters, removing the first fruits together with male blossoms and tendrils, giving them the benefit of the full sunshine, and avoid morning syringing as much as possible. A sowing should be made at once to ensure a supply of fruit at Christmas onwards, Telegraph being one of the most reliable sorts.

MUSHROOM HOUSE.

To insure a supply of Mushrooms in winter the beds must be formed at once. The best materials are horse droppings direct from the stables mixed with short particles of straw, these not only increasing the bulk, but aiding in drying and maintaining the material longer in a fresh and undecomposed state, upon which depends the continuance of the beds in bearing. These materials, neither too wet as to decompose quickly, nor so dry as not to decompose at all, should be formed into a bed of 15 to 18 inches thickness, and beaten as firmly as possible. When the heat has risen and is on the decline press in the spawn when the temperature of the bed at the depth of 2 inches does not exceed 90°. When the temperature has declined to 75° put on 2 inches thickness of fibrous loam, beating it down hard, and smooth the surface with the back of a spade. In six weeks Mushrooms will appear, and the surface must be kept moist by sprinklings of tepid water, and a moist atmosphere secured by the damping of available surfaces. In order to a supply of Mushrooms in winter we find a temperature of 55° to 60° essential.

PLANT HOUSES.

Epiphyllums.—These useful winter-flowering plants which have been started into growth early in the season will now be coming into flower, and are very effective either as standard or pyramid-grafted plants, also as dwarf plants on their own roots. They do best in an intermediate house, or one in which a temperature of 55° to 65° is maintained artificially. We grow them in quantity, and find the plants very useful for decorative purposes, and for vase decoration the flowers when cut are always acceptable.

Tree Carnations.—Every attention should be given to these, it being hardly possible to have the plants too strong. They should be housed without much further delay, assigning them a light airy position in a house where they will have a temperature of 50° to 55° by artificial means, in which they will flower freely during the winter months, and be highly appreciated for buttonholes, &c., by their delicious fragrance.

Mignonette.—This should be encouraged to make vigorous growth by keeping the plants near the glass and shifting them into larger pots as they require it. If aphides attack them fumigate moderately on two or three consecutive evenings. Remove all flower spikes for the present, and tie out the growths as they advance, keeping them well furnished to the base of the plants or the top of the pots.

Pelargoniums.—Plants that were cut back some weeks ago and have now produced fresh growth should be shaken out and repotted. If they have been in 8-inch pots they should be placed in 6-inch pots, trimming the roots a little and removing most of the old soil. Good fibrous yellow loam, with a fifth of well-decayed manure and a sprinkling of sand, is the most suitable compost. Pot firmly and place in a frame or pit, where they should be kept rather close and sprinkled occasionally for a few days, after which they can hardly be kept too cool and dry provided frost be excluded. The latest-flowered plants should at once be pruned, placing them in a frame or pit where they will be kept rather dry until they have broken.

Hardwooded plants that are being grown for specimens should have their growths regulated and the plants trained in proper shape.

If there should be a trace of mildew promptly dust with flowers of sulphur, but be careful to keep it from the roots of the plants, where it is certain to cause their death. It is necessary to house all hardwooded plants upon the first appearance of frost. Any plants needing larger pots should be shifted without delay, so that they may become well established before winter.

Azaleas that were started early and have completed the growth, also set the buds, should be placed in a cool house to enjoy a season of rest preparatory to their being put in heat for early flowering. Plants that have been stood outdoors to harden the growth should be moved inside before danger is to be apprehended from heavy rains or frost, similar remarks applying to other description of hardwooded plants, including Camellias, which are questionably exposed to outdoor influences. They certainly should be housed before the roots are saturated by heavy rains—a prolific source of the roots perishing and the buds dropping.

Medinilla magnifica grows strongly enough in a moist stove, but does not flower freely, and should now be given drier treatment, ceasing to syringe the foliage. When the wood is well ripened it flowers freely, not only from the current year's growth but from the old wood down to the base. *Achimenes* that have nearly ceased flowering should not be thrust anywhere out of sight, but be kept in a temperature as warm as it was requisite to grow them in, giving water moderately until the roots are fully ripened and the tops die gradually. *Gloxinias* require similar treatment—i.e., sufficient light and warmth, with water to keep the soil moist until the tubers are matured and the tops have gradually died. Any choice varieties may be increased by inserting the leaves, which now they are matured are less liable to damp off. They may be inserted four or more round the side of a 6-inch pot in sandy loam and peat, the pot being surfaced with half an inch of sand.

Winter-flowering *Begonias* should be given every attention. Any needing potting must be attended to at once; but unless the pots are small and very full of roots this is not desirable, as the plants are most useful in 7 or 8-inch pots. *Dipladenias* required to flower early in spring should be kept drier at the roots for a few weeks and then be cut back, giving at the same time a thorough cleansing with an insecticide. When they have made fresh growth remove about half the old soil, returning them to the same pots in good fibrous peat, and secure to the trellis. As the young shoots extend they can be trained to strings near the glass through the winter. Plants of *Clerodendron Balfourianum* that flowered early, and have since been pushed on to make growth, should be encouraged with liquid manure to make growth up to October, when the supply of water should be gradually diminished.

Most *Amaryllises* will be completing their growth; and although enduring a low temperature it must not be given until the growth is completed and thoroughly ripened, or they will not flower freely: indeed to grow these fine plants well they should have a light and well-ventilated position, so that the growth through the whole course of its formation will be thoroughly solidified.

THE BEE-KEEPER.

BEE-KEEPING RETROSPECTIVE.

WE do not intend in this paper to go back over the honey seasons of the last eight years, telling of all the causes which have separately and collectively caused a revolution in the bee-keeping world. These shall be treated of in later papers when our work for the year is done, and when by the cheerful fireside, our bees all snugly wintered, we can pass a few quiet hours and learn from the doings of the past what to do, how to do it, and when to do it, in the future. Yet our glance is retrospective, looking back over the last few months of the fast waning season. Although we all have learned much about bees which we did not know before—for who can keep bees for a single season without learning many a lasting lesson?—yet to one and all, to the practised bee-keeper and to the novice, the season has been one of disappointment.

Like many days in the past month of August, opening with a sunny sky, but ere many hours changing to cloud and rain, this season gave promise by the first glorious burst of spring in April and early May to be one of light and heat, and perforce of abundance of honey. An early and continuous income from the sweet May flowers brought joy and happy expectation to bees and bee-keepers. Queens hurried from cell to cell, from comb to comb, to deposit eggs, and the army of joyous labourers was soon having daily additions to its strength in the shape of newly hatched bees, which teemed out into the brilliant sunshine. All was joy and work and sweet reward for labour. Supers were placed on hives, and many a convert to the modern system of bee-keeping saw his first sections being rapidly filled, and he already built up a goodly pile on the show tables of future exhibitions. Alas! they were veritable *chateaux en Espagne*. A change came—a sudden, unexpected, disastrous change. The latter part of May and leafy June brought clouds and rain, frosts at night, and truly blasting winds. The bees, obliged to go out for pollen and water to satisfy the cravings of thousands of larvae, were overtaken by cold showers, and battered to death by chilly winds, were mocked by the sight of myriads of beautifully painted flowers in which no nectar was secreted. Queens walked slowly and disconsolately over the combs; the desire for depositing eggs ceased, or the foreseeing workers prevented their deposition. The newly hatched bees, instead of rushing out to the glorious sunshine, welcomed by their fellow labourers and ready to assist the veterans in their attack on the flowers, now proved so many thousands of hungry ones to feed from the rapidly emptying store cells. Driven to despair by the changeless leaden skies, by the dearth of food, that curious instinct came uppermost which transforms the careful nursing bee into a remorseless assassin. A general massacre of the innocents took place. Strewn on the alighting board were seen the dead bodies or emptied skins of the white unhatched brood. But matters had only come to this pass in the hives of those who through ignorance or carelessness allowed the poor insects to approach the threshold of starvation; not so with the stocks of the bee-master. He had taken care, as the cold change in the weather gave him warning, to contract the size of the brood chamber, which he had gradually enlarged during the few weeks of prosperity. He anticipated the daily wants of his colonies by the constant application of wholesome food. Given in the shape of thin syrup, both food and water were regularly supplied, and although breeding did not continue at so rapid a pace as during the continuance of beautiful weather, yet the colonies did not lose strength. But what have we to say of the newly hived swarms kept on the let-alone system? We know of a cottager who, from the want of knowing what to do, lost four strong swarms out of seven, and the remaining three will not fully recover from the effects of the starving until too late in the year to give any surplus honey, should a few weeks of fine weather yet allow the Heather honey to be gathered. And now we are rapidly approaching the end of the ingathering season, which may, as far as we are concerned, be put down as one of the worst we have known.

Those who are not in the neighbourhood of Heather knew that their hopes of a harvest were over as the month of August drew towards its end, but ourselves among others still hoped for some recompense when we saw acres of purple Heather expanded to the sight, and giving us whiffs of its sweet perfume when a gleam of sunshine lit up the hills. These hopes, we fear, will be blighted. Drenching rain and cold winds prevail as we write, and although our hives are teeming with bees, they cannot work; and although the heathery expanse is purple on the near hillside, there is no genial heat to cause honey to flow in the blossoms. Then what reward has the bee-master had beyond the careless and the ignorant? During the season of gloom his bees have been made to pay for the attention bestowed on them by having work apportioned to each hive according to its strength, such work consisting of the building of combs, the drawing-out of foundation, the contribution of frames of brood and eggs by the stronger to the weaker colonies, and in a very few well-favoured districts both super and extracted honey were obtained in some abundance during the early summer, when the fine weather prevailed.

Lincolnshire stands first among the well-favoured counties of the current season. Nine-tenths of the honey exhibited at South Kensington came from Lincolnshire, collected in the nick of time from the fields of Mustard and similar flowers.

One other drawback has to be added this season to the many others caused by a long period of showery weather. It has been a season especially favourable to the propagation of the aphid tribes. Trees and shrubs have been literally eaten up by vermin, the Hops more especially. The secretions of these vast armies of insects form what is called honeydew. Bees have collected it

during the intermittent gleams of sunshine, and mixed it with the little honey they could obtain. Thus much honey which has been on exhibition tables and for sale has been the colour and consistency of thin treacle, having a slightly bitter taste, and causing a slight irritation of the throat. It was, as far as we can remember, in the year 1877 or 1878 when during a similarly rainy season honeydew was collected in great quantities, and much honey spoiled. An avenue of Limes was near our hives, and the bees managed to secure a certain amount of beautiful honey, but so much of the dark-coloured honeydew was scattered through the combs that we could not employ the extractor without spoiling all.

We have now taken a retrospective glance at the season; we have confined our remarks to the doings of the bees and the bee-keeper. Altogether the season has, as we have shown, been a most discouraging one. Yet the science, for it is a science, of bee-keeping is rapidly gaining ground, and bee-keepers' associations have during the past year multiplied exceedingly. Shows have been held in all parts of the kingdom, and to judge by the enthusiasm awakened by the sight of the various manipulations with living bees, by the numerous questions asked by intelligent visitors, and by the success of tradesmen in all parts of the country who have established a business for the manufacture and sale of bee-keeping appliances, it is very certain that the day is not far distant when foreign honey will be driven out of the market, and the culture of bees become a national industry. To those who have only during the present season begun bee-keeping we would say, Do not be put out of heart by one bad summer. One really good year will make up for the disappointment of previous bad ones; and taking the average return in five or seven seasons for our labour and capital, bee-keeping will decidedly give a better per-centage on expenditure than that given by many other investments. This is only considering the subject in a pounds, shillings, and pence light, without taking into account the pleasure the possession of a few stocks of bees gives to a man fond of natural history, to whom apiculture becomes a delightful hobby—a perpetual source of enjoyment.—P. H. P.

THE SOUTH KENSINGTON BEE AND HONEY SHOW.

[Conclusion of Report.]

AMONGST modern bee-appliances the article termed a "rack" has come into very general use wherever the 1 lb. and 2 lb. sections are used. It is merely a frame for holding together the sections on the top of the stock hive, allowing sufficient space beneath for the free passage to and fro of the bees. To these most necessary adjuncts to the apiary Classes 10 and 11 were devoted, the former to those suitable for bar-frame hives, the latter to those adapted to straw skeps. The two classes contained thirty-one entries; and although of necessity a great similarity prevailed, yet in several cases we noticed improvements over former years, especially in the manner of binding together or tightening the sections. The preferable plan appears to be by means of the wedge rather than the elastic band, which is liable to split and crack and requires constant renewal, while the wedge is simple and lasting, being also most easily manipulated. In several exhibits we noticed a bad principle which should always be avoided—viz., placing the rows of sections too near to allow of the insertion of the fingers in order to withdraw any single section when filled, and to replace it with another, with little or no disturbance of the bees.

In the honey classes, 12 to 20, the display was by no means equal to that of last year either as regards quantity or quality; taking into consideration, however, the cold and wet season, we were agreeably surprised by the exhibits in several of the classes, and particularly by the large quantity of comb honey from Lincolnshire, without which the Show would have proved all but a failure in this department. The bee-keepers of that county were fortunate in the large breadth of land devoted to the cultivation of Mustard, during the blooming of which the fine weather enabled the bees to revel in its golden flowers. The quality of the honey derived from this plant is not of the finest quality, and it lacks the aroma and the pale golden colour of the white Clover honey. It is also said to granulate or become candied immediately after collection by the bees. Mr. Woodley's first-prize glass super weighing 30 lbs. was one of the finest we ever remember to have seen. Some few of the prize sections were also well filled, evenly wrought, and of fine quality.

The extracted honey was displayed in glass jars of improved shape, and well secured by metal caps. In quality it was equal to that of former years, and very far superior to the generality of adulterated trash sold in the chemists' shops as pure honey. That great desideratum of bee-culture—a ready sale at remunerative prices for the honey produced at home—if not already attained is, there can be no doubt, in a fair way of accomplishment.

The classes for comb foundation were fairly well filled, and the Judges evidently preferred the natural-based to the flat-bottomed by awarding the prizes to the former, Messrs. Abbott making a clean sweep of all the prizes.

The prizes offered in the four foreign and colonial classes, we were sorry to find, produced one entry only, that of an "Italo-American hive," by P. Bernizzi, which, however, did not appear. This is much to be regretted, as the advantage of comparing ourselves with other nations in apiculture, as well as in other matters, would tend towards clearing away our insular prejudices.

The class for mead or metheglin attracted four competitors and seven entries, Mr. Cowan sending four out of the seven, and most justly obtaining the prizes offered with twelve bottles each of what he termed Orange, Pine Apple, Raspberry, and Strawberry, "Melidone"—a technical word suggested, we suspect, by the now well-known "Zoedone," and which may be translated into English by the term "Honey-pleasure."

Through the courtesy of this gentleman, who is the able Chairman of the British Bee-keepers' Association, we, with many others, had the pleasure of tasting these beverages, of which we cannot speak too highly.

Six bottles of each exhibit were labelled "sweet," and six "dry." We preferred the latter, and consider that both will greatly improve by age.

The whole was effervescing, and hermetically sealed in small champagne bottles. It was stated to be non-alcoholic, and to be made of the juice of the fruits and pure honey. Mr. Scott also obtained a high commendation. If any further notice of the exhibits in this class were necessary, we would sum up our remarks in the old distich:—

They were like to Jeremiah's Figs:
The good were very good indeed,
The bad too sour for pigs.

Mr. Cowan again, as is his wont, made a clean sweep of all the prizes in the honey-extractor class with his Automatic, Commercial, and Rapid Extractors. In the Commercial a new and most excellent feature appeared, that of a reservoir with strainer attached capable of receiving a large quantity of extracted honey, which may be afterwards drawn off in its purest form—a great saving of labour indeed.

In the miscellaneous classes the specimens of beeswax were as fine as we ever saw. The glass honey jars were beautifully clear and their prices moderate, and most especially to be recommended were those with patent fastenings which obtained the first prize in Class 37.

In crates for the safe conveyance of comb-honey sections by rail or otherwise Mr. Cowan again had no mercy on his *confrères*, carrying off all the prizes in Class 38; and, with the exception of Mr. Blow's first in Class 39 also (for crates for glass jars) with admirable specimens for safety in transit.

The foundation fixer which obtained the silver medal for the same gentleman in the Any other invention class appeared to us somewhat similar to the American machine so generally used in that country. Messrs. Hart of Stockbridge, Hants, exhibited in Class 44 some very superior, strong, English-made 1-lb. sections, cut by machinery from the whitest poplar, and which we were informed could be supplied on more advantageous terms than the American sections. This being the case, we predict for Messrs. Hart an enormous sale of this now necessary article to all advanced bee-keepers.

In the driving competition Mr. J. K. Filbee was placed first, Mr. Walton second, and Mr. Martin third, the shortest time occupied being 3 min. 50 sec.

In concluding our remarks on this the greatest annual event in our bee-keepers' calendar, we must beg to offer our sincere congratulations to the British Bee-keepers' Association, and to all lovers and promoters of English apiculture, on the results achieved since the establishment of the Association in the year 1874, and most heartily do we bid them God speed.

DRIVING BEES.

I SHALL be glad to know through the pages of the Journal what drug is used for stupefying bees for the purpose of driving. I witnessed an operation of driving about three weeks ago, when the operator had in addition to the smoky torch, a small bottle containing a watery-looking fluid; a little sprinkling of this was put on the alighting board some few seconds before commencing his task. This torch was used only in getting the few remaining bees from their combs. The bees were rendered stupid and harmless. I should say the operation was very complete and well performed, doing no harm whatever to the bees. The operator refused to say what his drug was.—J. P. C.

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION.

THE annual Show of this Association was held in the Castle grounds, Hertford, on Wednesday and Thursday, August 30th and 31st, by the kind permission of A. P. McMullen, Esq. The grounds are admirably situated and well adapted for a show of this kind. Considering the Hertfordshire Association has only been established about four years the Exhibition was an extensive one, and the Committee are to be congratulated upon having disseminated so much useful knowledge upon a pleasing, important, and profitable industry in so short a time. Nearly every important town within the county sent exhibits, and many of the villages were ably represented.

The number of entries of honey were not so numerous as could be wished, but this is accounted for by the adverse weather which prevailed during the month of July. Notwithstanding, some excellent exhibits both of comb and extracted honey were shown by the Rev. F. G. Jenyns and F. Noulos of Stevenage; Miss Gayton of Much Hadham; Mr. E. Mathews, Royston; Mr. Gulston, King's Langley; Mr. H. E. Roberts, Hitchin; Mr. Sambels, and others. The prizes for honey offered by the British Bee-keepers' Association were awarded to Mr. E. Gulston, first, silver medal; Miss Gayton, second, bronze medal; Mr. E. Mathews, third, certificate. The special prize of £2 2s., offered by the Hertford Local Committee, was awarded to Miss Gayton.

The exhibits of hives made by members of the Association not being carpenters or hive-dealers, showed a considerable advance in the knowledge of hive-construction. The first prize was awarded to Mr. G. H. Baines, a pupil teacher residing at Tring; the second prize to the Rev. J. L. Seager of Stevenage; and the third to Mr. E. Jackson of Welwyn. There were nine entries in this class, and two extra prizes were awarded. An excellent display of hives and other appliances were shown in the classes open to all England. For the best and most complete hive the first prize was awarded to Messrs. Dines and Son of Maldon, Essex, for a well-made and cheap hive ("The Raynor Eclectic," price £1 15s.). Messrs. Neighbour & Son took second, and Mr. Blow third prizes. Messrs. Dines & Son were also first "for the best hive for cottagers' use," Mr. Blow being second. "For the best collection of hives and bee furniture," first, Mr. T. B. Blow; second, Neighbour & Son; third, Abbott Bros. Mr. Blow also took first and second prizes for the best observatory hives, the third prize being awarded to Abbott Bros.

Mr. J. M. Hooker (from the British Bee-keepers' Association), assisted by the Rev. J. S. Seager, Col. E. Smyth, Rev. F. G. Jenyns, and Capt. Croft, acted as Judges, their awards giving general satisfaction.

Capt. Croft, as Chairman of the Local Committee, was most assiduous in his labours to promote the success of the Show. The honey on sale found ready purchasers at good prices.

TRADE CATALOGUES RECEIVED.

Harrison & Sons, Leicester.—*List of Flowering Bulbs.*
Hooper & Co., Covent Garden, London.—*Autumn Catalogue of Bulbs.*
Louis de Smet, Ledeborg, Ghent, Belgium.—*Supplementary Catalogue of Plants.*
Charles Turner, Royal Nurseries, Slough.—*Catalogue of Hyacinths and other Bulbs.*
De Smet Frères, Ledeborg, Ghent.—*Autumn Catalogue of Plants.*
Dobbie & Mason, 66, Deansgate, Manchester.—*Catalogue of Bulbs, Roses, Fruit Trees, &c.*
Joseph Schwartz, Lyons.—*List of New Roses.*
James Carter & Co., 237 and 238, High Holborn, London.—*Illustrated Autumn Catalogue of Winter and Spring Flowers, &c.*
Edward Philip Dixon, Yorkshire Seed Establishment, Hull.—*Autumn Catalogue of Bulbous Plants.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Antirrhinums (S. & M.).—Many of the flowers sent are beautifully marked, but small; possibly the plants may belong to the dwarf section of this family, and if the spikes are good masses of them would be very attractive. The insertion of this reply was inadvertently omitted last week.

Duchess of Oldenburg Apple (G. Marsden).—This is both an early Apple and an early bearer—that is to say, the trees bear in a small state, and hence are suitable for small gardens. The fruit is attractive in appearance, being streaked with dark red, deepening to crimson in the sun. It is a very good Apple for dessert purposes, and excellent for cooking. It is of Russian origin, and will succeed in your Yorkshire garden.

Wintering Alternantheras (J. M. O.).—If you carry out the plan you propose of enclosing a space with boards and glass over the "bend" of the hot-water pipes in the corner of your greenhouse, you will no doubt be able to maintain a temperature of 50° to 55°, and in this you may, with care, preserve sufficient plants for supplying the requisite number of cuttings for striking in

the spring. *Alterantheras* cannot be safely wintered in a greenhouse from which frost is with difficulty excluded in severe weather.

Turf Litter (*C. D.*).—We do not understand your question, but print your letter of request in case any of our readers can comprehend the nature of the material to which you allude, and can give any information such as you are seeking:—"I have some of the above offered to me for manure. Do you think it will do as well as the old kind—of course, I mean after it has been in the stable, and if it can be used in the same proportion as the old?" If you had stated as precisely as possible the nature of the "turf litter," and explained what you mean by the "old," your letter would probably have been answered. We doubt if anyone can answer it satisfactorily as it stands.

Hexagon Netting (*A. F. M.*).—This is a thinly woven material, made, we believe, at Nottingham, but can be had from most of the principal nurserymen both in London and provinces. It is useful for protecting fruit trees from frost in spring, and the fruit from wasps and flies in the autumn, also for placing on the glass and affording a light shade to the occupants of frames in summer. The price varies with the size of the "mesh," the substance and quality of the material, and the width of the pieces. You can no doubt obtain samples and prices on application from the nurserymen and seedsmen with whom you deal.

Extirpating Worms (*C. A. J.*).—No doubt if you mix half a pint of carbolic acid with a gallon of water and apply it to the walk it will extirpate both worms and weeds; it will kill the grass and Box edgings too if allowed to touch them. Half an ounce of corrosive sublimate (bichloride of mercury) dissolved in 15 gallons of water will cause worms to come to the surface, but care must be taken that fowls do not eat them, otherwise they will be poisoned. A peck of freshly made quicklime mixed with 40 gallons of water, and allowed to stand till it clears, if applied through the rose of a watering pot will have the same effect.

Trees for Avenue (*G. S.*).—In all probability Beech trees would succeed as well as any in a medium that consists largely of chalk, and either the green or purple-leaved kinds make a good avenue and endure exposure. As evergreen shrubs the different kinds of Hollies would be suitable and effective, while such flowering shrubs as Lilacs, Syringas, Guelder Roses, Weigelas, and Hibiscuses would in all probability grow and flower freely. Whatever you plant you will find it of great advantage to procure some fresh good soil for surrounding the roots, especially of the more important trees, with the object of giving them a good start. Be careful, also, to secure healthy trees to begin with, as if stunted or checked when young they make slow progress afterwards.

Shelter for Currants (*Beginner*).—We know of no shelter more effective for a plantation of bush fruits in an exposed position than a row or two of Austrian Pines on the windward sides; but then you ask for something "profitable" as well as protective, and the Pines would only be profitable by the shelter they would afford, thus rendering the Currant crops of greater value. If you want a fruit-bearing screen you might plant Filberts and Damsons. The quickest screen is formed by planting Lombardy Poplars close together, so as to form a hedge, which can be kept of any required height by annual trimmings. A number of these narrow hedges intersecting exposed fields devoted to bush fruits would not occupy much space, while they afford valuable protection against cutting winds.

Hoya carnosa (*W. H. B.*).—This is the name of the plant of which you have sent a small truss of flowers. It is also called the Wax Plant as expressive of the character of the flowers, and the Honey Plant because a drop of clear very sweet fluid exudes from each flower when in perfection. It is a stove evergreen twining plant, and grows freely in a compost of rough peat and loam in equal parts and a liberal addition of lime rubbish and pounded bricks. The plants flourish best in a light position in a stove, but succeed well in a greenhouse where the temperature in winter does not remain for long below 45°; but an occasional fall to 40° is by no means fatal if the soil is, as it should be then, kept rather dry. Cuttings strike freely in sand in a close heated frame or propagating house; even the leaves will emit roots, and soon produce small healthy plants. It is a good old plant, worthy of culture. *Hoya bella* is much dwarfer, very floriferous, and highly attractive.

Planting Ivy (*J. R. W.*).—We doubt if there is a better and quicker growing form better suited for your purpose than the common Irish Ivy—*Hedera Helix hiernica*, sometimes also called *canariensis* and *graudifolia*. It clings to walls well, covers them rapidly when the soil is good, and forms a close green surface. The ground should be rich yet well drained, and trenched 2 feet deep. Ordinary fertile garden soil enriched with decayed manure, vegetable matter, and wood ashes, adding also a little lime rubbish, will be suitable for promoting quick growth, the plants being watered copiously in dry weather. The distance of planting depends entirely on the size of the plants, and the time of planting on the manner in which they have been prepared. If they have simply to be removed from one part of the garden to another October will be a good time; they succeed also when planted in spring. If we required to cover a wall as quickly as possible we should purchase extra strong plants established in pots, and plant them so that the growths would be trained a foot apart. As the number of growths on the plants vary the distance of planting is necessarily governed by these. If you furnish the requisite particulars to a nurseryman who possesses Ivies in pots he will supply you with the proper number of plants. The time in which your wall may be covered depends entirely on the soil, treatment, and character of the plants. Under very favourable circumstances it might be covered in five years, but under other conditions twice that time might elapse before you attained your object.

Thrips on Vines (*S. H. C.*).—As the thrips are only attacking three or four Vines near the hot-water pipes the surest, safest, and most effectual method of destroying them would be to sponge the leaves with a solution of soft soap and tobacco water, which your gardener will know how to prepare if he has read the Journal attentively, or nicotene soap at the strength of 3 ozs. to the gallon of water, Gishurst compound of the same strength, or half a glass of petroleum mixed in a gallon of water. We name all these remedies so that you can adopt the one most convenient. A man would be able to sponge all the infested leaves in an hour, and his time would be well employed. We should not fumigate the house now, because of the risk of affecting the flavour of the fruit, as we presume it is ripe, or nearly so. Probably, as you say, the thrips not being numerous would not do much harm. Still, it is very advisable to destroy them, as, if let alone this year, they will probably appear sooner and in greater numbers next season.

Woodlice Eating Peaches (*Adam*).—It is no trouble whatever to us to endeavour to aid you, or any of our correspondents to whom we can be of service. It is too late now for you to syringe the trees with any strong insecticide, but you might syringe them forcibly with pure water with a view of dislodging any insects that lurk about the wall or branches. Once on the ground you may

prevent them ascending the wall or trees by a barrier of tar, the stems being wrapped in cotton wool and smeared with tar, not applying it to the bark. It will do no harm placed along the wall close to the ground, and as long as it is moist no woodlice will cross it. You had better also trap or poison the insects. Boiled parsnip dressed with arsenic, or, what is better, cooked in an arsenical solution, and then placed in flower pots laid on their sides, these being placed where the insects abound, will entice many of them to take their last meal; or boiled potatoes put in flower pots and covered with moss will form favourite haunts of the pests, which can be shaken daily into boiling water and meet with painless extermination. Perhaps better than the tar for forming a barrier against the woodlice is a mixture of resin and sweet oil—two-thirds of the former melted and one-third of the latter. This if smeared along the base of the wall will keep moist, and none of the insects can cross it. If you had adopted the measures recommended sooner you would have saved many of your Peaches. The fruit may be gathered when it commences to soften near the stalk, and be placed in a warm place to ripen. The flavour may possibly not be quite so good, but fruit of moderate quality is better than such as you describe as not fit to be placed on the table.

Plant Stove Exposed (*Rosa*).—No doubt the end facing the north-west and much exposed is objectionable, and you might find a difficulty in maintaining the requisite temperature during severe weather. This, however, is easily obviated by having the end of brickwork instead of glass, and facing the wall with Lycopods, small Ferns, fine-leaved Begonias, Tradescantias, and other plants of a snitable nature, or it might be covered with *Marcgravia* or *Ficus repens minimus*, both of which cling to masonry with great tenacity and have an ornamental effect. For establishing the plants previously named it would be requisite to affix stout galvanised wire netting 2 inches from the wall, filling the space behind with turfy peat faced with moss, and in this inserting the plants. With plenty of moisture and the requisite heat they would grow luxuriantly and be highly attractive. Or, again, the wall might be built so as to resemble rockwork, with pockets for plants. If either of these methods were well and tastefully carried out the beauty of the house would be much enhanced and the necessity for hard firing greatly reduced, while at the same time there would be quite sufficient light for any other plants you required to grow in the body of the house. We cannot advise you as to piping without knowing the height, width, and length of the house, and the kind of plants you desire to have in it, or, at least, the temperature you wish to maintain in the winter. The sprays did not arrive in good condition. The one with dark fruits appears to be a *Phytolacca*, perhaps *P. decandra*, and the other *Lycasteria formosa*.

The Electric Light on Vegetation (*E. Best*).—Our experience on this subject is limited. We can only testify to what we have seen at exhibitions, and examples of plants that had been grown under the influence of the light in question were certainly more advanced than others of the same age, and, we presume, grown in the same temperature, that had not been exposed to its rays. We have observed also that such colours as blue and yellow are seen to the same advantage under the electric light as in the daytime; under gaslight, on the contrary, blue is changed to a greenish hue, and yellow to a tinted white. On the subject of your letter Dr. Siemens, in his presidential address at the British Association's meeting at Southampton, observed:—"In experimenting upon Wheat, Barley, Oats, and other cereals sown in the open air, there was a marked difference between the growth of the plants influenced and those uninfluenced by the electric light. This was not very apparent till towards the end of February, when, with the first appearance of mild weather, the plants under the influence of an electric lamp of four thousand candle power placed about 5 metres above the surface, developed with extreme rapidity, so that by the end of May they stood above 4 feet high, with the ears in full bloom, when those not under its influence were under 2 feet in height, and showed no sign of the ear."

Zonal Pelargoniums (*J. H.*).—Provided you have good varieties and proper conveniences for growing the plants your failure to produce large trusses is entirely your own, and is not in any degree attributable to the method of culture to which you refer. The best evidence of the instructions being sound was the condition of the plants which we saw, many of the trusses exceeding 18 inches in circumference. The term "loam" is a very indefinite one, and we are not at all prepared to dispute the statement which you quote, as some kinds of loam are quite rich enough to produce such results as you indicate. Perhaps the loam you employ is light and poor; perhaps you attempt to grow more plants than you have space for or time to attend to properly; or possibly you did not commence with stout healthy cuttings. If we knew the nature of your soil and the character of the house in which you have been trying to succeed we might be able to point out the cause of failure; without this information general notes on culture, we fear, would not be more serviceable to you than those which you have endeavoured to follow with such disappointing results. If you will supply us with information of the nature suggested, and submit the names of some of your best varieties, we will endeavour to give information that will be of service to you in your endeavours to produce large trusses of flowers.

House for Roses (*J. S.*).—We do not think you can grow Roses satisfactorily in the manner you propose, but with ventilators in the sides, also two at each end close to the roof, one over the door and the other to correspond, you would succeed in your object. If you further stretch some such material as open canvas of closely woven hexagon netting over the apertures permanently few sooty particles would find access when the ventilators were open. Instead of having 2 feet 6 inches of glass at the sides we should only have 1 foot 9 inches, the remaining 9 inches above the footboard being a ventilating board on hinges, and made to open the entire length, or if you prefer you might reduce the footboard by 3 inches; you would then have 2 feet of glass at the sides. Without ventilation your Roses would get too forward, and if they were not injured by frost in the spring they would be by insects. With the screens we have suggested and the free use of the syringe you will be able to keep the foliage clean during the season, but in our opinion ventilation is essential for success. The size of the panes will do provided you use thick glass. Such glass as is usually employed would be too weak for such a wide space between the sashbars. You would have light enough if the panes were a foot wide, using 21 oz. glass. The woodwork throughout is abundantly strong.

Names of Plants (*E. M.*).—*Hypericum umbellatum*. (*F. F.*).—1 and 2 *Agrostis alba* (White Bent Grass), easily distinguished from *A. vulgaris*, the ligule at the base of the leaf being oblong in *A. alba*, while in *A. vulgaris* it is very short and truncate; 3 and 4, *Agrostis canina* (Dog's Bent Grass); 5, *Panicum miliaceum* (Millet). (*Pen and Ink*).—No. 1 is not the Spurge Laurel; it appears to be a *Veronica*, but a spray showing the character of the plant is necessary for the purpose of identification. 2 is *Cerastium tomentosum*. (*W. Thornton*).—*Acanthus mollis*; the other specimen did not reach us. (*A. E. A., Woodbury Hall*).—Two of the fronds are *Asplenium fontanum*; the other appears to be a form of *Lastrea spinulosa*, but from such a poor specimen as the one received it is almost impossible to name correctly. (*W. McK.*).—1, *Lychnis Salicaria*;

2, a *Coronilla*, species not determinable; 3, *Helianthus*, insufficient for specific identification; 4, *Coronilla Emerus*; 6, *Abutilon striatum*. The specimens of the hardy plants are too fragmentary.

COVENT GARDEN MARKET.—SEPTEMBER 6TH.

A FAIR supply of Cobs reaching us, but clearing at moderate prices. Trade quieter.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	3 0 to 7 0	Lemons.....	case	20 0 to 30 0
Apricots.....	doz.	1 0 1 6	Melons.....	each	2 0 4 0
Cherries.....	½ sieve	0 0 0 0	Nectarines.....	dozen	2 0 10 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	100	6 0 10 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	2 0 10 0
" Red....	½ sieve	0 0 0 0	Pears, kitchen ..	dozen	0 0 0 0
Figs.....	dozen	4 0 0 0	dessert.....	dozen	1 0 2 0
Filberts.....	lb.	0 6 0 0	Pine Apples, English	lb.	3 0 4 0
Cobs.....	100 lb.	40 0 45 0	Raspberries.....	lb.	0 0 0 0
Gooseberries.....	½ sieve	0 0 0 0	Strawberries....	lb.	0 0 0 0
Grapes.....	lb.	1 0 4 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Lettuces.....	score	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mushrooms.....	punnet	1 0 1 6
Beans, Kidney....	100	1 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beet, Red.....	dozen	1 0 2 0	Onions.....	beh.	0 6 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	2 0 4 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 10 0 0
Capsicums.....	100	1 6 2 0	Potatoes.....	cwt.	6 0 7 0
Carrots.....	bunch	0 4 0 6	Kidney.....	cwt.	6 0 8 0
Cauliflowers.....	dozen	2 0 3 0	Radishes.....	doz. bunches	1 0 0 6
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzoneria.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	lb.	0 3 0 4
Garlic.....	lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Tomatoes.....	lb.	0 2 0 0
Leeks.....	bunch	0 3 0 4	Turnips.....	bunch	0 6 0 0



POULTRY AND PIGEON CHRONICLE.

THE HEREFORD BREED OF CATTLE.

THIS breed of cattle was formerly known as the Middle-horn, which appellation was also applied to the Devon and Somerset cattle. Since we can recollect, these cattle, now called Herefords, consisted to some extent of four different colours, but the style and type of each animal were much the same except in colour. The first to be mentioned was the tribe with mottled faces, with red marks intermixed as red spots upon the parts of the body usually white—as the face, feet, &c.; the horn of a moderate length, of a waxy colour, with a slight turn upwards, and tipped with black, the skin being especially mellow, of moderate thickness, and well covered with plenty of soft glossy hair. They were usually good upon the chine; and although they were not considered so docile as some other classes of Herefords, yet they displayed great aptitude to fatten. Another variety, the dark greys, were so called from the broad white stripe which extended the whole length of the back, and the parts usually white being thickly interspersed with small red spots. The horns being rather shorter, with a more upward tendency, the animals were also smaller in size and smoother in hair than the other classes, being better on the chine than the mottled-faces, and possessing flesh of excellent quality. The light grey or white Hereford with red ears were closely resembling the now general red-with-white-face Hereford, the general characteristic of which breed as regards colour is a rich dark red, with a white face, throat, and chest, and white on the neck and along the back, and also inside the legs and the under parts of the body.

Allusions have been found in old chronicles to a breed of white cattle with red ears as being possessed by the Welsh princes on the north side of the river Wye. It is also recorded that Lord Scudamore, who died in 1671, introduced red cows with white faces from Flanders, which may have cropped up in the bull calf

spoken of by a Mr. Fully, by whom it is related that the introduction of the white-faced cattle was accidental, and occurred in the stock of one of that gentleman's ancestors, who lived at Huntingdon in Holmer, and in the following manner:—"That about the middle of the last century the cowman came to the house announcing as a remarkable fact that the favourite cow had produced a white-faced bull calf. This had never been known to have occurred before, and as a curiosity it was agreed that the animal should be kept and reared as a future sire. Such in a few words is the origin of a fact which has prevailed through the county, for the progeny of this very bull became celebrated for white faces." This simple matter in itself was the origin of the peculiar distinction as regards colour now existing in the Hereford breed of cattle, and which is universal wherever the Hereford cattle are met with. We get further information from the above source, which states:—"That it ought never to be forgotten that our county breed might have remained for years located if it had not been for Mr. Westcar, who from 1779 to 1819 never omitted visiting the Hereford October fair and making purchases, and who induced the Duke of Bedford, the Duke of Manchester, Lord Talbot, and other noblemen to adopt the same plan."

Whatever Mr. Westcar might have done towards the advancement of the Hereford cattle, yet it must be admitted that the establishment of the "Hereford Herd Book" by Mr. Eyton, which commenced its records in 1845, had a greater and more far-reaching influence in bringing out the merits and advantages to graziers of the Hereford cattle. Mr. Eyton, however, at first did not receive any very hearty support, and after compiling the second volume resigned his task to Mr. W. Styles Powell, who died before he had completed the third, and Mr. T. Duckham, the late editor, entered upon his labours in 1857. Certainly a more able registrar of the Hereford cattle could not have been found, owing to his practical acquaintance with their breeding and management in his own farming business, and on whose opinions we set so much value that we shall take the opportunity as we proceed of quoting from them. At the commencement of the "Herd Book" there was no little strife amongst the county breeders, for not only were adherents of the white and mottled faces clamorous to be represented, but the light and dark grey breeds possessed some very influential and loyal adherents. All four claims and their breeders were allowed in the drawings on stone, and the mottle-faced Wellington, which was sold for £233 in 1816; the dark grey Victory; the white-faced Cotmore (376), a first-prize Royal Agricultural Society's bull at Oxford; and the light grey Brockwood were the chosen portraits for the first volume.

When the century was young we are informed that the Hereford breeder's pride was wont to develop itself in giving show-yard challenges. The eminent breeder, Mr. Price of Ryall, did not shrink from giving the Short-horned breeders a challenge in 1839 with twenty cows and a bull, when Mr. Bates was flushed with his victories at the Oxford meeting of the Royal Agricultural Society; but the Kirklevington philosopher, as Mr. Bates was frequently called, did not come to terms, and the stipulated month was allowed to pass over without any results. Mr. Ben Tomkins, another celebrated Hereford breeder, although he did not care to send cows from home on such a mission, yet he offered to place twenty cows for a hundred pounds against all comers at Hereford. The Rev. Mr. Smythies of the Lynch, a "singular grand divine" (as shepherds phrase it) among Herefords, as the Rev. Henry Berry was among Short-horns, felt anxious to show five times as many of all ages for the same sum, and Mr. Weyman was ready to bring out his white-faced bull Stockton (237) against all England for five times as much. Such spirited action met with no response, and the breeders contented themselves with a more solid proof of excellence in the prices obtained for the herd of Mr. Ben Tomkins after his death in 1819. Twenty-eight breeding animals averaged £152; and Lord Talbot, who always stood very stoutly by the sort, gave £262 15s. for a cow, and considerably more for a bull.

Before proceeding further with our subject we will give the description and points of the Hereford breed of cattle as stated by Mr. T. Duckham, the ex-editor of the "Hereford Herd Book," as follows—"The face, throat, chest, and lower part of the body and legs, together with the crest or mane and the tip of the tail a beautifully clear white; a small red spot on the eye, and a round red spot on the throat in the middle of the white, are distinctive marks which have many admirers. The horns are of a yellow or white waxy appearance, frequently darker at the ends. Those of the bull should spring out straightly from a broad flat forehead; whilst those of the cows have a wave and a slight upward tendency. The countenance is at once pleasant, cheerful, and open, presenting a placid appearance, denoting good temper and the quietude of disposition which is so highly essential to the successful grazing of all ruminating animals. Yet the eye is full and

lively. The head is small in comparison with the substance of the body. The muzzle is white and moderately fine; cheek, thin. The chest is deep and full, the bosom sufficiently prominent. The shoulder bone is thin, flat, and sloping towards the chine, well covered on the outside with mellow flesh; the kernel is full up from the shoulder point to throat, and so beautifully do the shoulder blades bend into the body that it is difficult to tell in a well-fed animal where they are set on. The chine and loin are broad, hips long and moderately broad, legs straight and small. The rump forms a straight line with the back, and is at a right angle with the thigh, which should be full of flesh down to the hocks without exuberances; the twist should be good, well filled up with flesh, distinguishable by its yielding with a pleasing elasticity to the touch. The hide is thick, yet mellow, and well covered with soft glossy hair, having a tendency to curl. Such are the characteristic marks of a first-class Hereford."

The "Hereford Herd Book," which, in 1878, had recently been disposed of by Mr. Duckham to a company, recorded in its ninth volume the herds of 219 breeders, and had a list of 347 subscribers. The number of bulls entered in the entire work had then reached 5176; of cows, with their produce, 4723; and of heifers, 4905. Within the last few years the most prominent exhibitors at the Royal Agricultural Society amongst others we may mention, are Mr. Wm. Taylor of Showle Court, Ledbury; Mr. Wm. Tudge of Adforton, Leintwardine; Mrs. Sarah Edwards of Wintercott, Leominster; and Her Majesty the Queen. In wishing to obtain the best blood in the kingdom, the home farmer cannot do better than select stock from the prizewinners' herd, although he may not wish to play the part of an exhibitor at the agricultural shows. If he has for breeding purposes the best and purest blood he will be enabled to obtain the most profit, whether of grazing in the summer months, or box-feeding during the winter time, or to make the best price for those animals he may choose to sell for stock. Further, he can obtain the most meat for the food consumed, and in the shortest time, upon the principle of early maturity. If the stock is sold as veal at four or five months old, the Hereford calf will pay better for suckling than any other breed at weight for age, although the only difference we have ever found in our own practice was that the Devon calf was of the best quality and sold at the highest price per pound to the butcher, yet the Hereford calf, under the like circumstances of suckling, would yield the greatest weight for age and fetch the most money. The same rule applies in the rearing and feeding as "baby beef."

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This is a particularly busy time now for the horses, so that unless some means are adopted for supplementing their work, such as the use of oxen for a time, as we remarked last week, or the aid of steam power for cultivating, all the work required or necessary to be done before the 1st of December next cannot be accomplished in a satisfactory manner. Since reaping commenced the tillage of the land has crowded upon us, all requiring immediate attention in addition to the actual horse labour required for drawing the reaping and binding machine, the carting of corn to the rick or barn, as well as cutting the latter growth of Clover and other grasses, and the carting of the hay to rick. It must be considered that it is not good commercial farming to allow this work to have stood in the way of proceeding with tillage work; for unless we have the power available by steam or otherwise of tilling the stubbles directly they are cleared our tillage power is insufficient; in fact, much should be done in the way of drilling stubble Turnip seed between the stooks of corn. It is in this way in the early districts that capital stubble Turnips are obtained after Wheat, Rye, white Oats, winter Oats, and early Peas, otherwise our establishment for autumn tillage, &c., is by no means equal to a profitable mode of conducting the labour of the farm in the autumn period. The sooner Trifolium sowing is done the better; 25 lbs. of seed should be sown per acre on the bare stubbles (which, however, should be free from couch), and then by using the iron harrows crossways and lengthways, followed by the chain harrows, and then rolled down. The collected stubble should be removed for use in bedding pigsties. The next work is sowing Rye, 3 bushels of seed per acre. The land should be ploughed and pressed, and the seed sown after the presser, or, which is better, by the press drill; it will then be buried deep enough to obtain firm hold of the subsoil, a matter of great importance in the event of a severe winter ensuing.

Winter Barley must next be sown, 3 bushels of seed per acre in the same manner as for Rye. In the event, however, of the black variety being sown 4 bushels will be required, for it does not tiller so much as the ordinary sort, but leaves the ground quicker in the spring, and is the most forward cereal plant known as a green-fodder crop. Vetches of the winter variety should now be sown, and if required for early feeding the early sort a very small grain should be sown with Rye or winter Barley in admixture, as the leaves of the cereals protect the Vetches in their first growth, and hold them up off the ground at full growth; 2 bushels of Vetches and 1 bushel of cereals will be sufficient

seed per acre. Italian Rye grass, too, may now be sown on a clean stubble, as it will give two good foldings for stock, or cuttings of green fodder before the preparation of the land is required for the root crop following; 3 bushels of the best foreign seed well cleaned and prepared by the seedsman is required for an acre, but we would not sow seed grown at home upon any account, as it does not produce either such a full crop or come so early or so quickly in the successional growth. Cart manure from the farmyard, the cattle boxes, pig-pens, &c., to the field where required, and the sooner it is spread and ploughed under the better, whether it is on lea or fallow ground; and the land when ploughed should be pressed at the same time; the land may then remain until seed time, as it will become stale and mellow to receive the seed. On the fallowed land, especially where the soil is cold and lies flat, the sooner the dung can be laid out the more likely it will be to finish the carting work before the heavy autumn rains and without injury to the seed bed by treading; the dung, however, should be ploughed in a good depth in order that it may be properly buried, because if done in that way the land may remain undisturbed until drilling-time, the first or second week in October being the best time. Upon such soils the Wheat should be drilled 12 inches apart between the lines; 2 bushels of seed at the early season will be sufficient, but should the seed time be delayed $2\frac{1}{2}$ or 3 bushels should be drilled. This wide drilling applies more particularly to strong soils, which are usually subject to Goldweed, black bent grass, &c., for either of them in some seasons will ruin the Wheat crop unless horse and hand-hoeing can be carried out. In fact the home farmer is never master of his position unless he can destroy the weeds, which he cannot do under broadcast sowing, except upon land after Clover lea, which is seldom troubled with weeds in spring; this should always be seeded after the presser. We do not like drilling on lea ground, as the young plants are more likely to be lifted by frost and injured by wireworms, and again if required, horse and hand-hoeing may be done equally well after the presser or press-drill as after that seeded by the ordinary drill.

Hand Labour.—Hedge-trimming, especially Whitethorn hedges, should now be done, the last time before the young shoots get hard and wiry. Drawing straw and piling away ready for use in thatching should be done at those intervals of showery weather which interfere with harvest work; and we must again advise the home farmer to teach every capable labourer in his employ to build ricks and thatch them; the weather has been so stormy that stacks have been damaged on nearly every farm in consequence of not having been thatched as soon as built.

Live Stock.—All those bullocks which are fat and having been grazed upon the pastures may be sold, but those not quite fit should now be allowed about 4 lbs. of linseed cake and 2 lbs. of crushed beans or peas, as the grass lands are getting stale and the aftermath not so healthy and forcing as that of summer growth. Where the pasture have been grazed by dairy cows during the summer there will be tufts of grass left, and these should be cut off and cleared away, as these bunches of seedy grass often contain ergot, which produces abortion. If, however, these pastures are fed by steers or young stock they may be allowed to eat it down during winter without receiving injury. The hill flocks of down breeding ewes, as well of the long-wools, in the vale pastures of the midlands will now have the rams running with them; and if it is desired to force the ewes by extra feeding for the purpose of obtaining earlier lambs and more twins, the food and feeding ground should be changed twice a day, and they may also receive with advantage crushed beans, maize, or cotton cake about half-a-pound per day each. In purchasing sheep stock for winter feeding great caution will be required, for they are selling at high prices, which means an investment of more capital without any extra profits in view to compensate for the outlay.

HOP PROSPECTS.—The *Kentish Observer* finds that its special reports from the Hop districts are more unfavourable this week than ever. The ungenial weather has caused great damage throughout the county, but greater mischief still has been done by the spread of mould. It is impossible now for the grounds as a whole to yield what they promised to do about a fortnight ago; they will, it is estimated, produce from 1 cwt. to 2 cwt. per acre less, as a consequence of the combination of deterrent influences recorded above. In most of the grounds about Canterbury the Hops look shrivelled up and the leaves brown and black. Inside they are better, and here and there were some nice-looking Hops—fairly well developed and of a bright green hue. Mould and mildew are spreading. Although the Faversham district is favoured as compared with other parts of the county, there will not be so many Hops grown in this district as it was thought there would be a fortnight since. The weather is not warm enough to make them grow out, and some few gardens are going off with mould. In the neighbourhood of Maidstone artificial aids have done much to improve the condition of the crops which have been preserved, and though the yield will be small some compensation is looked for in higher prices.

THE FRENCH HARVEST.—The annual report upon the French harvest supplied by the firm of Estienne & Co. of Marseilles, states that the Wheat crop has been very good in twenty departments, good in forty-six, pretty good in eleven, inferior in nine, and bad in

one (Corsica). The Oat crop is described as being very good in twenty-two departments, good in fifty-five, pretty good in three, and inferior in seven. The Maize crop is very good in two departments, good in twenty-four, pretty good in three, and inferior in six. Rye is described as being very good in six departments, good in fifty-one, fairly good in eleven, and inferior in eight; while the Barley crop is very good in fifteen departments, good in forty-five, pretty good in nine, inferior in four, and very bad in two. The report is, therefore, upon the whole a very favourable one.

PRIZES FOR CROPS IN NORTH DURHAM.—The Judges appointed by the East Chester Ward Agricultural Association to adjudicate between the competitors for the prizes for the best crops offered by the Association for its members have given their decisions as follows :—Wheat—first, Mr. William Ebdon of Fulwell; second, Major Briggs, Hylton Castle. Potatoes—first, Mr. Wm. Snowdon, Harton Down Hill; second, Mr. John Douglass, Whitburn Bent. Even upon this strip of fertile land along the coast the Judges say the crops are not above the average; but they are glad to place on record the fact that up to the time of judging no disease is to be seen among Potatoes.

HAY MITES—SALT IN STACKS.—Many years ago after stacking Italian Rye Grass hay, grown from seed imported direct, and from which I had two cuttings, both bearing seed, available for the following year, salt was scattered upon the hay when stacking, and around the base of the stack a few weeks after was found a heavy line, particularly on the southern side, of buff-coloured insects dead. I at once came to the conclusion that seemed to be the only reasonable one—that the animalculæ escaping from the salt in the interior had come to the outside, and then, dropping to the ground from the eave, had perished in a body. When the cattle were supplied with the hay in winter there was a marked improvement in their condition and yield of milk, partly, I suppose, due to the superior quality of the hay, and partly to its having been sprinkled with salt in stacking.—N. (*Irish Farmers' Gazette.*)

POULTRY AND PIGEONS

LATE POULTRY SHOWING.

It is not long since we gave our opinion generally upon the early showing of young poultry—*i.e.*, the exhibition during the summer months of forward young birds of the year. We freely expressed ourselves against it as the general rule, though it has its use in particular cases and for particular breeds. We much prefer late showing—*i.e.*, the exhibition of young birds in autumn which have nearly or quite reached their growth for the first year, and they have or ought to have strong and matured constitutions. For the former chickens must necessarily be forced if they are to make a good appearance, in the latter case those reared under the most natural circumstances are frequently the most successful.

Autumn is near at hand, and it is high time for the poultry fancier to have his eye upon those birds likely to be the representatives of his or her yard at the great autumn shows. Now, therefore, is the time to give some instruction for their management henceforth. Those who only attend to their poultry just before the time of shows can hardly expect to be successful. All chickens with glaring faults have of course long ago been weeded out. From time to time unfortunately something will go wrong with some of those which have seemed the most promising. Over-quick growth brings wry backs, and abnormally heavy frames cause weak legs; but even after the further deduction of the stock that follows such misfortunes there will be differences in the residue. A quick eye will observe a chicken here and there which seems to grow faster than its fellows of the same age; often it may for a time appear an ungainly creature, but experience becomes prophetic and teaches to descry in it the signs of future excellence; or in a bird of colour here and there a back or hackle feather of surpassing richness or purity will peep through the chicken garb, hitherto mixy and unpromising. We need hardly say that such birds should have the best runs, and that all inferior birds should be made to give way to them. This holds good for all kinds, from the largest Brahma to the smallest Bantam. The fewer fowls that are kept together the better they thrive. Beyond this, however, there is considerable difference in the treatment proper for birds of mere feather, and for those which must be large as well as of typical beauty. We will take the two classes of varieties separately.

1. In the case of those kinds in which size is of no advantage, as Hamburgs and Polands, or is a positive disadvantage as Bantams, we should generally leave the chickens of both sexes together, un-

less the cockerels become very troublesome and spoil the pullets' plumage. Full development of the male plumage, especially of flowing tails and well-grown hackles, is in nearly all these a great point, and this is promoted by the presence of hens. It is, too, absolutely necessary that a show cockerel should not be bullied. In the case of Hamburgs and Bantams we have specially observed that the cockerel of the walk advances in sickles far beyond his subordinate brothers. It must therefore be managed that any very promising bird may have command of his run, either by moving him to a vacant one or by the removal of all others likely to clash with him. Stimulating foods always stimulate pugnacity, and should therefore never be given so long, as it is desired to keep a large party as a happy family.

It must not be forgotten that a bad fray even between half-grown cockerels is a serious matter. The crest feathers torn from a Poland chicken will often not be replaced for months, and a tear in the lobe of a Spanish, a Hamburg, or a rose-combed Bantam may spoil him for life as an exhibition bird. If any tendency to bickering shows itself such cockerels must at once be separated. It is impossible to keep any number of cocks whose beauty is so easily damageable without many small enclosed runs in which they can be isolated or mated with a hen or two. As long, however, as all goes on quietly, and the favourite cockerels are not kept under by others in such a way as to retard their due development of plumage, we should leave them together quite into the autumn. On large premises, especially where the birds form themselves into parties which range in different directions and do not interfere with each other, this arrangement may long continue with a little management. We have in this way kept many show Hamburgs together, even after the cocks had frequently been shown; it is not, however, an experiment to be tried by a beginner.

As the day of exhibition approaches, say ten days beforehand, the chosen young chanticleer, unless he be veritably the cock of the walk, should be put with a couple of hens in a run by himself and well fed. A very few days of such treatment will make the greatest difference in his looks and courage. Pullets of such breeds, if tolerably early hatched, seldom need any special preparation beyond confinement for two or three days, not necessarily the last days, before exhibition in a show pen to accustom them to it. This makes a great difference in their chance of success, if they are at all wildly inclined.—C.

(To be continued.)

OUR LETTER BOX.

Italian Rye Grass (*Farmer*).—This will last the second year, but will not be so profitable as during the first year, as it is apt to die and become hollow at the bottom in the winter months; but still it will give large crops in succession, especially if nitrate of soda is applied immediately after each cutting, at the rate of 1½ cwt. per acre, and the best foreign seed has been sown in the first instance. We recommend that the back number of this Journal should be obtained dated the 24th of July, 1879, wherein the cultivation, &c., of Italian Rye Grass is set forth in every detail. It can be had from our office in return from 3½d. in postage stamps sent to the publisher, with the date of the paper required.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. August. September.		Barome- ter at 32 ^s and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
			deg.	deg.			deg.	deg.	deg.	deg.	
Sun.	27	Inches. 29.789	60.0	55.9	N.W.	58.0	66.2	50.8	96.3	49.3	—
Mon.	28	29.791	58.8	55.0	S.W.	58.0	66.3	49.5	96.3	40.2	0.098
Tues.	29	29.418	59.3	53.7	S.W.	57.6	65.3	51.5	115.6	46.2	0.102
Wed.	30	29.943	59.4	53.4	N.W.	57.5	69.5	59.2	122.3	50.2	—
Thurs.	31	30.070	58.5	53.0	N.W.	57.4	64.4	45.0	82.5	45.0	0.273
Friday	1	29.774	60.6	59.4	S.	57.4	65.7	54.3	79.4	54.8	0.152
Satur.	2	29.542	64.3	58.8	S.W.	58.7	69.8	59.1	119.9	56.2	—
		29.761	60.1	55.6		57.8	63.7	51.1	101.8	48.8	0.625

REMARKS.

27th.—Overcast with scarcely any sunshine.
28th.—A little sunshine in the afternoon, but generally dull and overcast; heavy shower at 8.30 P.M.
29th.—Morning showery; afternoon and evening fine and bright.
30th.—Heavy clouds in morning; bright afternoon and evening.
31st.—Dull overcast morning; very wet afternoon and evening.
1st.—Morning bright at intervals; showery afternoon and evening.
2nd.—Cloudy with high wind, but on the whole fair.
A dull and cloudy week with a good many showers. Mean pressure slightly below that of the preceding week; mean temperature about the average, and almost identical with that of the preceding week, but there was less sunshine.—G. J. SYMONS.



14th	TH	
15th	F	
16th	S	Sale of Bulbs at Stevens's Rooms, Covent Garden.
17th	SUN	15TH SUNDAY AFTER TRINITY.
18th	M	
19th	TU	
20th	W	International Potato Show, Crystal Palace.

GATHERING AND STORING FRUIT.

I AM afraid the above heading will appear like a grim joke to many of the readers of this Journal, and some, perhaps, will uncharitably remark: "What is the good of advising upon the subject when we have little or no fruit to gather and store?" Luckily all of us are not so badly situated, and those who own or are in charge of gardens well sheltered from the furious gale experienced on April 29th have good cause to congratulate themselves. Up to that date the prospect generally was bright enough, but the storm completely changed it; and instead of heavy crops of Apples and Pears in particular, the question was not whether this season's crops would be worth anything, that being easily determined, but whether next season's prospects would not be blighted, so seriously cut were all exposed trees. All, however, have not lost their crops of Apples and Pears, and as these are likely to prove of considerable value I propose to offer a few remarks upon securing and storing the fruit.

More judgment is required in this matter than is generally exercised, as not a little depends upon gathering at the right stages and properly storing. Pears especially in one man's hands may prove of little value, while the same examples might easily have been transformed into delicious dessert fruit. Apples may also be easily mismanaged. There is a certain stage when both kinds should be gathered, and if this is anticipated or passed the quality is risked. According to my experience neither kind should be gathered and eaten at once, neither should they remain on the tree till presumably ripe—that is to say, in a dropping state, as by storing only for a short or long time, according to the variety, can richness and lusciousness be obtained. The proper time to gather is when the seeds are found to be nearly brown or black, and the stalks part freely from the trees when the fruit is lightly lifted. If gathered before they arrive at this stage the fruit is almost certain to shrivel, while if allowed to remain till ready to drop they are liable to become flat in flavour, both results being objectionable.

At times it may be advisable to gather part of the crop before being really fit, in order to artificially ripen the fruit, and thereby both obtaining dishes when perhaps much needed, and also lengthening the supply. This practice is particularly necessary in the case of notorious bad keepers, such, for instance, as the delicious Pear Williams' Bon Chrétien. It is useless to pick these before the pips have commenced changing colour, but when found to be changing a quantity of fruit may be gathered, packed in hay in a hamper or box, and placed in

a warm forcing house or a kitchen at a safe distance from the fire, which will induce early ripening without much impairing the quality. To succeed these more may be gathered at the same time or in the course of a day or two and placed in the fruit-room, this again hastening ripening, and in this manner the whole of the crop may be ripened and eaten with the loss of few if any fruit. We ripened a good dish of Williams' Bon Chrétien by August 24th, and from the trees growing in three different aspects we shall continue to gather small quantities, and ripen the fruit in all probability throughout September. Another very delicious Pear, Louise Bonne of Jersey, is also very amenable to this practice. The same method of inducing early ripening may be adopted in the case of heavy crops of Apples or Pears, or where it is necessary to maintain the supply without the assistance of certain varieties generally relied upon.

Last season it was not a question of hastening but of retarding ripening, as nearly every variety was fit for use at unusually early dates, great offenders in the respect being Winter Nelis, Knight's Monarch, and Easter Beurré Pears. This season the reverse will probably be the case, as, unless a great change in the weather occurs soon, the absence of sunshine may result disastrously to the fruit. In all probability early frosts will be experienced before much of the crop can be considered fit to gather. Even slight frosts may not prove serious evils, but I prefer the fruit to part freely from the tree without their intervention. Neither Apples nor Pears are frost-proof to any appreciable extent, though in the case of some long-hanging sorts a slight frost is often of service in preparing them for gathering. Apples and Pears should, as a rule, be gathered as they become ready, neither before nor after if required to keep unimpaired in quality, and this plainly indicates the danger of gathering all sorts at a certain date. It may be more convenient to have a wholesale clearance, but it is far from being the most profitable practice. They should always be gathered in a dry state, every care being taken not to bruise them.

Storing, the second part of my subject, is by no means the least important. We sometimes see gardens where fruit trees have been planted well and extensively, and yet no adequate provision made for properly storing the produce; while others provide an elaborate fruit-room far beyond the requirements of the garden. The former, at any rate, err greatly in not providing a good fruit-room, neither are we in favour of a large half-empty room. Apples and Pears are too often stowed away in various unsuitable places, those responsible evidently forgetting that a great chemical change has to take place before the so-called ripe fruit is really fit for eating, and that the circumstances under which this change occurs materially affect the quality.

When first gathered the fruit is composed largely of starch and acid, and in course of time this, by a natural process which I shall not attempt to explain, is converted into sugar, much of the water of the juice being evaporated. Now the most favourable position to assist this conversion is a dry, airy, but not draughty room, and the worst a close, damp, badly ventilated structure. Fruit gathered from the same tree and placed in two such widely differing places will, when in season, be found as widely different in quality as two distinct varieties, those in the drier warmer room being invariably richer, sweeter, and brighter in colour. Evaporation form-

ing part of the process of conversion, it is very evident this is not much encouraged in a damp cold structure; but at the same time rapid evaporation caused by either excessive heat, light, or strong currents of air is harmful, and may result in shrivelling and loss of quality.

If we wish to improve the appearance of either Apples or Pears, as well as to hasten the ripening process, these are packed in hay in boxes and placed in heat as previously mentioned. If near their proper time of ripening, Apples and Pears will bear a good heat and ripen in two or three days; but if we endeavour to ripen them out of season the process must be gradual, or the fruit will inevitably shrivel. Artificial ripening will sometimes convert examples thought to be worthless, and which but for the experiment would have remained worthless, into delicious fruit.

The commoner sorts, more especially of Apples, may be stored in heaps or thinly on the floors of the fruit-room, while the choicer varieties ought to be disposed thinly in single layers if possible on the shelves, the Apples stalk downwards, and Pears the reverse. Each sort should be divided with strips of wood and be properly labelled. If there is no provision for keeping out the frost the latticed staging or shelves and the floor should be covered with hay or straw previous to bringing in the fruit, and more of the same material be at all times kept near in readiness for covering the fruit when frost is imminent. Frigi domo, canvas, and mats may also be utilised for the same purpose. For our room we have a portable stove heated with paraffin, but should not depend entirely upon this, as I have seen much fruit spoilt by severe frosts, and now am always anxious to be "on the safe side." The less fire heat employed the better, however, for the simple reason it is certain to hasten ripening generally, whereas it is our aim to maintain the supply as long as possible.

Apples and Pears must be handled carefully when picked, and at all times if they are expected to keep, and when tested as to ripeness should be pressed with the thumb only near the footstalk. If not soft there they are not at their best, and, besides, the slight bruises do not disfigure the fruit or greatly impair its keeping qualities, as would otherwise be the case. All should be frequently examined, as a few decaying fruits will spoil others that are in contact with them. Heaps especially will be greatly benefited by being turned and sorted, and great care should be taken in the first instance not to mix any bruised or otherwise damaged fruit with the sound ones, or all may be spoilt. Fruit with small holes picked in them by birds will not keep. Blackbirds and tomtits are great scourges this season, and as the former only visit us when fruit is to be had we have no mercy on them.

Filberts and Walnuts when gathered, the former before they shell out too freely, should be dried on the floor of the fruit-room, and then packed away in boxes or jars and placed in the darkest and coolest corner. They keep fresher in a cellar or in jars buried in the earth, but this deprives them of much of their sweetness, and in my estimation renders them worthless. —W. IGGULDEN.

PROPAGATING EUONYMUSES.

IN January last I pointed out the value of these variegated shrubs for decorative purposes, and notes on their propagation will now be seasonable and probably acceptable to some of your readers.

All the varieties can be propagated by cuttings. The treatment of *E. radicans variegatus* differs slightly, as it is perfectly hardy, grows rapidly, and is often increased by division, yet thousands are annually produced by cuttings. This variety is too well known to need any comments from me. The cuttings should be taken if convenient during the month of September, the earlier the better, providing the wood is sufficiently ripened. Although the time mentioned is preferable, they can be inserted any time during the winter, and success will follow, as they root readily when judiciously treated. The points of the shoots should be selected, and the cuttings then trimmed 2 to 3 inches in length. The wood must be cut clean below a joint, and the leaves removed for about half the length of the shoots. Care must be taken not to let them wither before inserting them. Eight-inch pots are the best for the cuttings. These should be well drained and filled with sandy soil, with a good layer of sand over the surface. The soil should be pressed rather firmly into the pots. The longest

should be placed in the centre, with the next size near them, the smallest being placed at the sides of the pots. In nurseries great care is exercised in this respect, not that the cuttings root any better, but they look neater and more workmanlike, and little if any longer time is required than by an irregular system. After insertion a good soaking of water should be given, and the pots placed in cold frames or boxes similar to those recommended for Conifers, only sufficiently large to hold at least a dozen pots. These frames or boxes must be placed between two span-roofed houses, or on the shady side of a hedge or wall where the temperature will be uniform. The frames should be kept close, and but little other attention is needed, only to see that the soil in the pots does not become dry. After one good soaking the plants will not need water again for a long time, as evaporation is limited with the frame kept close. If the weather is sunny shading must be resorted to and the pots lightly damped occasionally with the syringe. The cuttings can remain in this position as long as the weather continues open—in fact if the winter is not severe, no better place could be given them. In severe weather the less hardy varieties should be removed to the close frame in the Conifer house. The green-leaved varieties, such as *E. latifolius* and the hardy *E. radicans variegatus*, can remain in the boxes, but must be protected with mats or other material to prevent, if possible, the cuttings and soil becoming frozen. I have known many deaths result from this cause, especially if removed when frozen to a warmer place.

When they are conveyed from the cool boxes to the Conifer house some care is necessary for a time to prevent the cuttings damping. If taken late it is preferable to place them in the close frame in the house where a gentle heat can be given, or if they have been taken early they will be callusing, and will be somewhat benefited by the change. In this stage the warmth of the Conifer house assists them to produce roots, after which they should be transferred to 3-inch pots, and if the close frame can again be spared them for about a fortnight so much the better. In nurseries generally there is abundance of pits or frames with one or more small hot-water pipes running through, where such plants can be kept close and properly treated for a time when first potted; then the heat is gradually reduced and the plants finally grown on under cold-frame treatment without a check.

Sandy loam and a little manure mixed with it suits these plants well. If the loam is good and rich the manure need not be employed. When all fear of frost is past the young plants can be plunged outside in long narrow beds, the pots being entirely covered with the plunging material. The points of the shoots should be taken out to induce the young plants to become bushy, supplying water whenever they require it, which is all the attention needed until autumn. The green forms and *E. radicans variegatus* are treated exactly alike, only heat is not required by them. They are kept in pots for a time, and eventually planted out and lifted for transplanting during the same season as Conifers and other evergreens.

I may add for the good of those who wish to grow them for window plants and increase their stock, if the cuttings are made as I have described, inserted in a pot, and a tumbler placed over them, a fair percentage may be rooted even in rooms.

In growing standards it is best to keep them growing in pots without stopping them, removing all side shoots as they appear until they attain the desired height, when they should be pinched to form a head. Standards are induced to grow most quickly by keeping them indoors. —W. BARDNEY.

RENOVATING OLD PEACH TREES.

To keep Peach trees in good health the roots must be well attended to, as if these are out of order the crop will be lost. Having had some experience with old Peach trees I will now state it, as it may be of use to those who may be placed in the same predicament as myself a few years ago. The trees were covered with red spider, the shoots very succulent, some of the branches dying, no roots within 2 feet of the surface, and those devoid of fruit-feeding fibres. My employer told me that he had not had a crop of fruit for seven or eight years.

I commenced the work of improvement by cutting out most of the succulent shoots and well syringing the trees early every morning to keep the red spider in check, and employed a little fire heat, affording free ventilation to ripen the wood. When the leaves commenced changing I dug a trench 6 feet from the base of the tree and worked the old soil out with steel forks. It was very light, having been in the border for several years. When the roots were clean the drainage was rectified and the border filled with good yellow loam, lime rubbish, and charcoal dust, and

the roots laid near the surface, a good watering being then given to settle the soil about them. The house was kept as cool as possible consistently with the health of the plants that had to be grown in it. The trees were started during the last week in February. This would have been deferred, but fruit was wanted early. The pipes were only just kept warm until the stoning was completed, and after then the growth was not hurried.

The result of the above practice was that the fruit was very much finer than formerly, but the trees were only allowed to carry a moderate crop. The two subsequent seasons the trees were pronounced grand, and carried a heavy crop.—A. YOUNG.

PRESTON FLORAL AND HORTICULTURAL SOCIETY.

THE Exhibition of the above Society was held in Moor Park, Preston, on Wednesday the 6th inst., lasting three days, in connection with the Royal Manchester, Liverpool, and North Lancashire Agricultural Society's Show. Although on Monday and early on Tuesday it was very wet, and the grounds were in a very bad condition, the prospects were greatly remedied on the appearance of summer-like weather. The decision of the above Society to hold their Show during the Guild week was evidently a wise one, as the Show was well attended, and we trust the financial condition of the Society will be materially improved.

There were three large tents well filled with a good collection of plants, fruits, and vegetables, and a liberal schedule was arranged for cottagers and amateurs. There were also two other smaller tents filled with miscellaneous exhibits. Specimen plants, both stove and greenhouse, were good and clean, including *Lapagerias*, Palms, Cycads, Ferns both exotic and hardy, and a very varied assortment of other plants. The specimen of *Lapageria alba* exhibited by Mr. Forshaw was particularly fine, and richly merited the prize for the best plant in the Show. It had abundance of its charming white wax-like flowers. Softwooded plants were numerous, such as *Coleuses*, *Pelargoniums*, Tuberous-rooted *Begonias*, *Salvias*, &c. Some of the two former groups were finely grown and of good colour. Lilies and other hardy flowers were not quite satisfactory. Cut flowers were largely staged, and the wreath of *Camellias* shown by Mr. Wm. Troughton, the Secretary of the Society, was well arranged, and well merited the award. Fruit was but scantily shown, and certainly not up to the average; but for this deficit the vegetables made satisfactory amends, as many of them were very good.

Messrs. Dickson, Brown, & Tait of Manchester exhibited a fine collection of Potatoes, Roses, and Dahlias, and received a special prize. The Roses were fine for so late in the season, while the Dahlias were examples of good culture. Messrs. W. Caldwell and Son of Knutsford, Cheshire, exhibited a collection of Coniferous plants, including but few rare specimens but those most useful for general decorative purposes, and these were effectively arranged. A special prize (silver medal) was also given to that firm for the exhibit. The hot-water appliances, &c., exhibited by Messrs. Medcalf & Dilworth, hot-water engineers of Preston, was unique, and merited a special prize. Other miscellaneous groups which received special prizes were those of Mr. L. Black, nurseryman, Fulwood, for a variable group of plants; Mr. Tyson of Ulverston, for hot-water apparatus; to Mr. W. Clapham for an artistic rockery; and to Mr. William Troughton of Church Street, Preston, for his magnificent stand of plants, which upon the whole was one of the finest features in the Exhibition, the plants being well grown and most effectively arranged. Much of the success achieved is due to the energy of the Chairman and Secretary of the Society, Mr. Alderman Forshaw and Mr. Wm. Troughton.

In the plant classes the principal prizetakers were the following:—Mr. W. Troughton, Preston; E. Forshaw, Esq., Fulwood; Col. Wilson, Cooper Hill, Preston; W. Denny, Esq., and C. W. Hawkins, Esq., Ashton. For twenty herbaceous and alpine plants a silver medal was given to Mr. T. Miller of Woodplumpton, who exhibited a very creditable collection.

In the cut flower classes the most important prizewinners were Mr. Wm. Troughton, W. Birley, Esq., Mr. A. Barker of Fulwood, Mr. J. B. Dickson, Preston; Mr. R. Teebay of Fulwood, and Mr. J. Caunce.

In the fruit classes the following exhibitors were the most successful:—Mr. W. Loose of Winmarleigh, Col. Wilson, R. J. Flowerdew, Mr. E. Pirley, S. C. de Trafford, Esq., of Croston, and Mr. R. Smith.

Vegetables were largely exhibited and in very fine condition. For the best collection of twelve varieties of vegetables the first prize was given to J. Wilding, Esq., of Walton; second Mr. J. Parker; third Mr. J. Titterton of Fishwick.

THE ROYAL MANCHESTER, LIVERPOOL, AND NORTH LANCASHIRE AGRICULTURAL SOCIETY'S SHOW—HORTICULTURE.

There were several important exhibitors in the grounds upon which the Agricultural Society's Show was held. Messrs. Sutton and Sons of Reading had their grand display of seeds and roots, which were a great centre of attraction. Messrs. Webb & Sons of Stourbridge also had a remarkably fine exhibition, comprising chiefly seeds, vegetables, and farm produce. Messrs. Dickson & Robinson of Manchester exhibited a fine collection of Potatoes, which were well arranged. The same firm also exhibited a collection of Dahlias—

Show, Fancy, and Pompon varieties, the flowers of most being large and of good form. Mr. J. Matthews of Weston-super-Mare had a stand of pottery, including pots of various patterns, vases, &c. Messrs. James Dickson & Sons of Chester exhibited a fine collection of stove and greenhouse plants, including Tree Ferns, Palms, Crotons, *Dracaenas*, exotic Ferns, &c., which were tastefully staged in a large tent with double Tiger Lilies and trays of superb Roses for so late in the season, as well as trays of about fifty varieties of hardy herbaceous plants and a tray of a dozen flowers of their new white *Carnation Duchess of Westminster*, which was greatly admired. Outside the tent was a large well-arranged group of Coniferous and other hardy shrubs, interspersed by brilliant *Gladioli* and Tiger Lilies; and not the least striking feature for this season were the numerous



Fig. 40.—*Scabiosa caucasica*.

small Apple trees well laden with fruits of excellent form and good size. There were also boxes of blooms of Roses, single and double-flowered Dahlias, *Gladioli*, and a good collection of Apples outside. Excellent examples of Grape Vines were also shown. Messrs. F. and A. Dickson from the same locality had also an excellent collection of stove, greenhouse, and decorative plants, as well as a choice assortment of hardy shrubs, &c., all of which were creditable to the firm represented.—VISITOR.

SCABIOSA CAUCASICA.

THE common Scabious, *S. atropurpurea*, is well known and much valued in gardens, not only as a border plant but in pots

for decoration or to furnish a supply of fragrant blooms, and in many establishments it is now largely grown for the latter purpose. A beautiful but quite distinct companion for it in the flower border is *Scabiosa caucasica*, of which a woodcut is given in fig. 40. This species undoubtedly deserves a place in every collection of hardy plants; and though it has no claim to novelty its beauty is amply sufficient recommendation to cultivators. The flowerheads are 3 or 4 inches in diameter, bright pale blue, and they are very freely produced, rising above the long slender pinnatifid leaves. It is of compact habit when growing freely, as it will in any moderately good garden soil, but rarely exceeds 3 feet in height even when most vigorous. The flowers are well adapted for cutting, as they last a considerable time in water.

LATE GRAPES.

FOR some weeks past the weather has been unfavourable for the ripening of late Grapes, and more fire heat than usual has been needed. Those who started their Vines gently early in the season will now have their fruit well coloured and ripe and in good condition for keeping. I have always found Grapes keep better when ripened moderately early and without having to force them too hard in their last stages, and none has ever kept better with me than those ripened towards the end of August last year. Both Alicantes and Lady Downe's were fresh and plump, with their footstalks as green as when cut from the Vines; in fact, in such condition that they were used until the new ones were ripe and placed on the table with them the following May. It is difficult, especially in seasons like the present, to thoroughly ripen Grapes on Vines that were allowed to start naturally and develop during the best part of the season without fire heat. To attempt to keep back Vines, as is frequently practised, for the purpose of having them late or for fear of their ripening too early, is a great mistake and a waste of time, not to mention the extra fuel required in autumn to ripen them and the wood. Grapes ripened six weeks or two months later than the time I have mentioned will not keep in good condition for that length of time longer the following season than those ripened earlier. Early in the season only little fire heat is needed to start late Vines into growth when the power of the sun is daily increasing, which gives the cultivator every chance to allow the Vines to take their time as soon as they show signs of colouring. Many late Grapes fail to finish and keep well through the efforts made to ripen them when the days are short and the sun's power decreased. I have long since failed to see any advantage in retarding Vines during the best part of the season, and then resort in autumn to an unnatural system to bring them to perfection; but prefer starting them moderately early, and allow them to develop with abundance of ventilation both night and day, which ensures thick leathery foliage and firm wood, which will be thoroughly ripened by this time and certain to produce good fruit again the next season.

I am acquainted with more than one grower who will not have their Grapes ripe for some time yet, and who wish now they had started the Vines earlier. It is always wise to be on the safe side, and this season may teach valuable lessons.—CULTIVATOR.

THE LONDON PARKS.

HAMPTON COURT.

ALTHOUGH this magnificent old pile is not usually reached in much less than an hour from the Waterloo station (while the journey by river, however pleasant in fine weather, is nearer three hours), yet it must still rank in the above category, at least in its gardening aspects, for the pleasure grounds are under the same governmental supervision as the other parks, while it is essentially a great rendezvous of Londoners. And not Londoners only; all parts of Europe, America, and the Antipodes send visitors to see the great building and its beautiful surroundings.

Passing through the Palace the visitor enters the grounds about the centre of a noble terrace walk nearly 40 feet wide and approaching a mile in length. Before him, looking across the extensive lawn, are three grand avenues reaching far across the park. In a line with these are walks intersecting the lawn and flanked with ancient Yews; thus the avenues appear to converge on the main eastern entrance of the building. On each side of these walks the flower beds are arranged also along one side of the terrace walk and round the lawn. Altogether there are ninety beds, many of them 12 feet wide and some 36 feet long, but the majority are 24 feet in length. Then on the opposite side of the long walk is a ribbon border, and behind towards the back part of the lawn herbaceous borders recently planted 200 or 300 yards long and perhaps 15 feet wide. No small space, then, is devoted to flowers, and every foot is occupied well.

Where all the beds are so good it is difficult to select, but a few of striking appearance are the following:—*Veronica Andersoni* variegata thinly planted in a groundwork of Hampton Court Crimson

Verbena, edged with three rows of Golden Harry Hieover *Pelargonium*. There are, indeed, more than one bed so planted, and they have a splendid effect. The surface is a sheet of fiery crimson relieved with the silvery *Veronica*, for the *Verbena* grows as freely as it flowers profusely. It may be described as an enlarged form of *Crimson King*, from which, however, it is quite distinct, and is unsurpassed if equalled as a bedding variety. It is a splendid acquisition, and Mr. Graham must be congratulated on his good fortune in raising such a useful plant.

The *Pelargonium* that excels all others in richness of effect—huge trusses closely packed of deep crimson—is *Henry Jacoby*, the beds of it being broadly margined with *Centaureas*; they are indeed most striking. The scarlet variety that shows to the greatest advantage in large beds is *Warrior*; these are edged with *Alyssum saxatile* variegatum, and are very bright. The most effective pink masses are of *Pelargonium Amaranth*, and of rose *P. Rose of Allendale*. A new salmon or oculated variety named *Surprise*, from Mr. Cannell, makes a fine bed, the plants being dwarf and floriferous.

Several beds are planted with variegated sorts—gold and silver bicolors—mixed with *Violas*, and the effect is most pleasing. *Flower of Spring* and *Viola Favourite*, rich blue, edged with *Iresine Lindeni* and margined with the *Golden Stellaria*, is an attractive arrangement; equally so is *Mrs. Pollock* and *Viola The Tory*, edged with *Coleus Black Douglas* mixed with the same *Viola*; and *Bijou* mixed with *Blue Bell*, and banded with *Iresine*, cannot be passed without admiration. The *Iresines*, both *Lindeni* and *Herbstii*, are deep and rich, but the darkest of all is *I. Wallsi*; it appears intermediate between the two, having the leaf of *Herbstii* but smaller, and the colour of *Lindeni*, but richer.

Some mixed beds cannot be overlooked. They are what Mr. Graham calls "September beds," and at the present time no beds on the lawn are more beautiful. They are planted with *Iresine Lindeni* and *Abutilon naevium maculatum* 18 inches apart in a groundwork of *Verbena venosa*, and broadly banded with three rows of the *Iresine*. The effect is most striking, the grand foliage of the *Abutilon* contrasting effectively with the dark foliage and flowers. This, it may be remarked, is the best of all the fine-foliaged *Abutilons* for garden decoration, the variety *Thompsoni* being poor in comparison.

Beds of mixed seedling *Verbenas* are both attractive and fragrant, and masses of the fine old *Rose Souvenir de la Malmaison* command general approval. The plants flower three times during the season, the beds containing thousands of blooms. A late autumn bed of the early white *Chrysanthemum Madame Desgrange*, of the Japanese type, above which rise brilliant masses of *Verbena fulgens*, is a most effective combination. These *Lobelias* will be employed more largely next year, so grand are they now; but edging *Verbenas* of the *Erinus* type are not to be seen at Hampton Court, not succeeding well there, and there is sufficient of purple and blue in the *Violas*.

The carpet beds remain to be mentioned, for it were futile attempting to describe them. Both as regards design and planting they must decidedly rank as superior examples of this mode of decoration. Difficult as it must be to provide fresh patterns, there is not the slightest sign of any abatement of public interest in these beds. The striking feature of the beds is the liberal employment of *Echeveria Peacocki*—by far the finest and best of all the succulents for such work. An oval of some three hundred plants of it, with end panels of *Leucophyton*, a dividing scroll of *Echeveria secunda glauca*, and masses of brilliant *Alternantheras*, forms an arrangement worthy of a long journey to see by those who wish to see a finished example of this mode of decoration. There are other beds also worthy of inspection, each totally dissimilar from the rest; but we cannot make their appearance intelligible, and those who cannot see them and desire to know more about them cannot do better than purchase Mr. Graham's descriptive pamphlet of the bedding arrangements. It contains many useful hints, and can be had for 1s. We have been told he would sell more copies if the plants in the beds were named, as this would incite interest in them and a desire for further information. Single *Dahlias* are well represented, and a selection of the best herbaceous plants is being established.

There has not only never been so many species and varieties of plants at Hampton Court as at the present time, but it may be safely asserted that the grounds have never during their history—over some three centuries and a half—been more attractive than during the present year. Mr. Graham is perhaps the only good judge who is not quite satisfied with his work. That it is not perfect in his estimation is to be gathered from his intentions of having some better arrangements another season. We hope he may succeed in accomplishing his self-imposed task, for assuredly it is no light one.

GARDEN FAVOURITES.

Ampelopsis Veitchii.—The extraordinary annual growth of this popular plant strengthens the conviction that it is the most useful as well as the most beautiful climber of modern introduction. It is emphatically a climber, requiring no support from shreds, nails, or tying; laying hold of everything with which its young growth comes in contact, and clinging with a tenacity that renders the removal of any part of it a difficult matter. No building is too lofty for it, its young growth at a height of 60 feet being as vigorous as it was at 6. Onward it goes, spreading outwards and

upwards over every inch of surface : masonry, woodwork, or iron, all is covered, and it is curious to see how every projecting beam and gable is clothed by the neat growth. The large foliage upon the old branches is already changing from its summer green to the purple and crimson of autumn. As growth ceases the smaller leaves of this year's shoots will gradually assume many varied tints of crimson, scarlet, purple, and carmine till they are all glowing with a brilliancy that is quite unique. Would that it were more durable ! But while it lasts we will enjoy it to the utmost, and turn the lovely slender branches to account for all sorts of decorative purposes, for they are so abundant that plenty may be taken off without disfigurement or harm.

Ampelopsis sempervirens.—This is an evergreen climber with abundant pretty lobed deep green leaves, admirably suitable for clothing bare walls or the sides of buildings with perennial greenery, and for mingling with the growth of deciduous climbers. I have planted it at the side of a lofty building over which *A. Veitchii* is fast spreading, and its growth this season is long and strong enough ; but it has not the Ivy-like habit of clinging to walls which renders *A. Veitchii* so valuable, its tendrils having only the property of twining like *A. hederacea*.

Linaria Cymbalaria.—Better known, perhaps, as the Ivy-leaved Linaria. This is frequently met with growing wild, trailing over old ruins, among the stones of which it establishes itself, and also among our choicest rockery plants, but always as a trailer ; and certainly its long slender growth is very ornamental thus. But this summer it has taken a useful place among what may be termed dwarf climbers, for a plant of it growing at the bottom of a wall and near the stem of a Grape Vine has pushed its growth upwards among the Vine branches fully 6 feet high, clothing every part of the wall left uncovered by the Vine, and imparting an aspect to it as novel as it is pleasing. I have frequently advised the planting of evergreen climbers for clothing the lower part of buildings that are so often left bare by tall-growing climbers, and gladly add this old favourite to the list.

Chenopodium atriplicis.—An old favourite of the flower garden, which I last recommended to notice some fourteen or fifteen years ago. I am glad still to see its name in the catalogues of some of the principal seedsmen, for it is a plant of much beauty suitable either for subtropical groups or for a mixed border. It is an annual of most easy culture. Sow the seed in March under a handglass upon a warm border, harden the plants by gradual exposure to the open air, then plant them in their summer quarters just as you would a Cabbage plant ; and once established there, all they require is sufficient space to develop fully their attractive pyramidal growth some 3 feet high, with dark red stems, purplish green and red leaves, and every branch crowned with a curious red inflorescence.

Commelina caelestis.—One may go into a dozen gardens without seeing this lovely hardy perennial ; and yet we have few plants more attractive than are its deep blue flowers so charmingly disposed upon its light loose branching growth about 2 feet high. It produces seed so freely that a packet of it only cost 3d. The tuberous roots used to be taken up and stored in sand during winter, but they have now been left undisturbed in the soil, and are always in full beauty at this season of the year.

Blue Hydrangeas.—These are just now so attractive that I am constrained to draw attention to them once more. All of them were nearly killed to the ground by the late two severe winters ; but they have wonderfully recovered, most of them being now 7 or 8 feet in diameter, with a handsome globular outline, and with huge trusses of blue flowers clustering by the hundred among the fresh green foliage. It is the Chinese variety, *H. hortensis* ; and the presence of oxide of iron in the soil in such abundance as to impart a dark red hue to it is the well-known cause why the flowers come blue instead of pink. The soil I have used contains a natural ochreous deposit from a powerful chalybeate spring ; but anyone may produce the change of colour in the flowers by mixing red ochre plentifully with the soil.—EDWARD LUCKHURST.

TOMATOES AND CUCUMBERS.

Tomatoes are becoming more generally grown. Those who did not even know the name of a Tomato a few years ago now know how to cultivate them, and use them too. Last year we had some thirty-six varieties on trial, but three-fourths of them were very inferior. This year we have not more than half a dozen, and these will be reduced further, as we shall not grow President Garfield again, it being too rough and unproductive. Crossling's Glamorgan is coming well to the fore. Here, and every place I have seen it, it is giving satisfaction. It has a splendid constitution, doing well in the open air as well as under glass, and no other is so prolific, while the fruits are large, well formed, slightly ribbed,

and highly flavoured. If I were limited to one sort this would be relied on.

Cucumbers in house, frame, and on ridges have done well with us. Amongst market salesmen the complaint is that the supply has been greater than the demand. Tender and True is a large showy Cucumber, better suited to grow for exhibition than for the table. For the latter purpose Telegraph is a good one, but with many Pettigrew's Cardiff Castle is taking its place. In doing this nothing will be lost, as this variety is really a first-rate one. It is a sure and robust grower, and the fruit are produced most freely. They are from 12 to 15 inches in length, and even from end to end. One plant of it will produce twelve fruit for every one on Tender and True, or any other of the show varieties. Lately we have planted a dozen winter Cucumber plants, and they are all of Cardiff Castle. We would give the same advice about this as the Glamorgan Tomato—namely, where only one variety is wanted this should be selected.—M.

NATIONAL DAHLIA SHOW.

WHEN it was announced that a committee was formed with the object of having what was described as a National Exhibition of Dahlias at the Crystal Palace, and when the support of the leading cultivators was assured, it was a foregone conclusion that the Exhibition would be a success. And so the event has proved. The Show was held on Friday and Saturday last, and the display of double and single Dahlias was brilliant and imposing. In magnitude it excelled all other shows of the kind of recent years, but it is impossible to say the same as regards the general quality of the blooms. While not a few were magnificent, and the prizewinning stands generally excellent, yet there were hundreds of rough examples—some overgrown, some undergrown, others worn, and some undeveloped. This, however, was only to be expected, and the result has shown that many cultivators have much to learn in bringing this noble autumn flower to perfection. It has shown also that many blooms of the present day are no better, if as good, as those of twenty years ago ; and this fact, for such we believe it to be, affords the best evidence for the necessity of increased efforts being made for extending the culture of a flower that has proved itself so singularly tractable and capable of improvement in the hands of skilled cultivators. But while the double varieties have not made any appreciable advance of late, the single forms have increased as it were by magic, and come on the world like a shower of floral meteors. Hundreds of varieties were represented in the Show, and almost every conceivable colour which double Dahlias possess was embodied in these new comers. There is just a fear that they may come too fast and bewilder, but they will not be "common" for a year or two ; and the Judges acted wisely in their decision not to grant certificates except to varieties of commanding excellence. But we must refer to the classes. Upwards of £100 was offered in prizes, and in most of the classes there was good competition, a few only being sparsely filled. The plants in pots were not so good as we expected to see them, and the best of them fell far short of a collection so grown at Chiswick last year.

In Class A, open to nurserymen, for forty-eight distinct Show varieties, there were nine competitors, the premier award falling to Messrs. Keynes & Co., Salisbury, for the following collection :—James Cocker, Lady Gladys Herbert, Prince Arthur, sport from Gaiety ; Mrs. P. Wyndham, Flora Wyatt, George Rawlings, George Edwards, Arbitrator, Joseph B. Service, Henry Bond, Frederick Smith, Herbert Turner (champion bloom), James Stevens, Duke of Connaught, Joseph Ashby, Mrs. Harris, William P. Laird, William Rawlings, Goldfinder, George Dickson, Henry Walton, Rosy Morn, Enchantress, Mr. Spoforth, Admiration, Annie Gibbon, Champion Rollo, Mrs. Stancombe, W. N. Williams, Thos. Goodwin, Rifleman, Prince Bismarck, Canary, Clara, John Bennett, Michael Saunders, Prince of Denmark, Flag of Truce, James Vick, Miss Cannell, Lord Chelmsford, Triumphant, and four seedlings, all of them fine flowers. The second prize was awarded to Mr. Charles Turner, the Royal Nurseries, Slough, for a collection almost of equal beauty, these being only three or four points behind the Salisbury collection ; Henry Walton, Lady Gladys Herbert, James Vick, Herbert Turner, Fred Smith, John Wyatt, Chris. Ridley, Modesty, John Green, and Flag of Truce being especially fine. Mr. William Boston, Manor Farm Nursery, Carthorpe, Bedale, Yorkshire, was adjudged third honours. Annie Neville, Criterion, Vicc-President, Henry Walton, and Acme of Perfection were amongst his best flowers ; Messrs. H. Cannell & Sons being placed fourth for a good collection. W. H. Williams, Sunbeam, Charles Wyatt, E. Edwards, Aurora, and Lady G. Herbert were conspicuous for colour, purity, and form. The real contest in this class rested between the Salisbury and Slough collections, and Mr. Turner's blooms were undoubtedly the finest, several of Messrs. Keynes' being undeveloped, and possibly on this account their freshness and brightness placed them in the premier position. It appeared to be a question of colour *versus* form, and the greatest importance was attached to the former by the Judges, who spent much time and took great pains in arriving at a decision.

In the class for twenty-four distinct Show varieties there were twelve competitors. Mr. Charles Turner was awarded first honours

for a matchless stand of the following varieties:—Henry Walton, George Rawlings, Lady G. Herbert, Burgundy, Perfection of Primroses, H. W. Ward, Alex. Cramond, Royal Purple, Lady Wimborne, Constancy, John Standish, Julia Wyatt, Prince Bismarck, Goldfinder, Jos. Green, Hon. Mrs. P. Wyndham, James Vick, Chas. Leicester, J. N. Keynes, a seedling, Ethel Brittain, John Rawlings, Herbert Turner, and John Wyatt. Messrs. Keynes & Co. were a very good second. Mr. W. Boston, and Messrs. Harkness & Sons, Bedale, Yorkshire, third; both showing good collections. This and the three following classes were for nurserymen only.

Class C was for twelve distinct varieties. Messrs. Paul & Son, The Old Nurseries, Cheshunt, were awarded the first prize, their collection consisting of Walter H. Williams, George Barnes, Lord Palmerston, Constancy, John W. Lord, Criterion, Ben Crossland, Emily Edwards, James Service, George Chrichton, Christopher Ridley, and Flora Wyatt; the second, third, and fourth prizes falling respectively to Mr. John Walker, Thame, Oxon; Messrs. Saltmarsh & Sons, Chelmsford, Essex; and Messrs. R. Veitch & Sons, New North Road, Exeter, in the order of their names.

Class D, twenty-four distinct Fancy varieties, there were five competitors, Messrs. Keynes & Co. being placed first with a splendid collection. The flowers were of large size, and included Miss Lily Large, Hercules, Jessie McIntosh, Professor Fawcett, Hugh Austin, John Forbes, Parrot, Chorister, Polly Sandell, Henry Glasscock, Monsieur Chauvire, James O'Brien, Maid of Athens, Mrs. Saunders, George Barnes, Singularity, sport from Gaiety; John Saunders, Robert Burns, Rev. J. B. M. Camm, Fanny Sturt, and two or three seedlings. Mr. Charles Turner was a good second, Jessie McIntosh, Grand Sultan, James O'Brien, Beauty, and a sport from Gaiety being amongst the best. Mr. William Seale, Vinc Nursery, Sevenoaks, Kent, had the third prize, and Messrs. Cannell & Sons the fourth. Mr. William Boston was recommended for an extra prize.

Nine collections were staged in Class E for twelve Fancies, Messrs. Rawlings Bros. securing the first award with the Rev. J. B. M. Camm, Peacock, Hugh Austin, Egyptian Prince, Gaiety, Chorister, George Barnes, Hercules, Miss Browning, Barnaby Rudge, Jessie McIntosh, and Mrs. Saunders; Messrs. Paul & Sons the second; Mr. John Walker the third; and Messrs. James Gilbert & Sons, St. Margaret's Nursery, Ipswich, fourth.

We now come to the amateurs' classes. For twenty-four distinct Show varieties first honours were awarded to Mr. Henry Glasscock, Rye Street, Bishops Stortford, for a remarkably even stand of William Rawlings, Mrs. Harris, Prince Bismarck, The Countess, Ethel Brittain, Joseph Green, James Vick, J. N. Keynes, Alexander Cramond, Lady Gollightly, W. H. Williams, Prince Arthur, W. G. Harris, Miss Cannell, Miss M. Batchelor, Miss Hodson, Thomas Goodson, Herbert Turner, Prince of Denmark, Rev. J. Gooday, Sunbeam, Miss Edwards, and Modesty. The blooms in this stand were not large, but their symmetry and freshness were remarkable, and they were greatly admired. Mr. E. Fletcher Charleston, Baildon, near Leeds, received the second prize, Chas. Leicester, Acme of Perfection, Clara, Vice-President, Countess of Lonsdale and James Vick being the most noticeable. Mr. Thos. Hobbs, Lower Eaton, Bristol, secured the third prize; and Mr. Godden, gardener, Manor House, Tovil, Maidstone, the fourth. There were eleven competitors in this class.

In the class for twelve Show varieties sixteen collections were staged, first honours falling to Mr. W. B. Butterworth, Green Hill, Kidderminster, with an even and fresh collection, comprising Julia Wyatt, Duke of Connaught, Mr. Harris, Prince Bismarck, Vice-President, Frank Rawlings, Perfection of Primroses, James Cocker, Sunbeam, Royal Queen, Harry Walton, and Criterion. Mr. J. T. West, gardener to W. Keith, Esq., Brentwood, Essex, was placed second; Mr. H. Glasscock third; and Mr. J. Trawter, Upper Assenden, Henley-on-Thames, fourth, all running each other very closely. In the class for six hlooms there were only four competitors, Mr. F. Masters, Shepherd's Cottage, Penenden Heath, Kent; Mr. J. Monk, Brickford Cottage, White Horse Hill, Chislehurst; Mr. John Palmer, The Larches, Handsworth; and E. Mawley, Esq., Lucknow House, Addiscombe, Croydon, each taking the prize in the order of their names.

Fancy Varieties.—For twelve distinct hlooms Mr. Henry Glasscock was well ahead with Flora Wyatt, Henry Glasscock, Mrs. Browning, Parrot, Mrs. Saunders, Professor Fawcett, Viceroy, John Lamont, Wizard, Letty Coles, Fanny Sturt, and Gaiety. Mr. W. Butterworth received the second prize, Mr. E. Fletcher the third, and Mr. C. Hockney, Greenfield House, Stokesly, York, the fourth. Seven collections were staged in this class. For six hlooms Mr. J. F. West; Mr. J. Ridout, gardener to J. B. Haywood, Esq., Woodhatch Lodge, Reigate; Mr. G. Boothroyde, gardener to Miss Ellice, Woodville Hall near York; and James Wigan, Esq., Bishops Stortford, shared the honours in the order of their names.

Class L (open) twenty-four distinct blooms, Pompon varieties, set up in bunches of not more than ten trusses, with huds and foliage, on boxes covered with moss after the manner of staging Roses, Mr. Chas. Turner was worthily awarded first honours, his style of arrangement being both pleasing and attractive. His collection consisted of E. F. Jungker, Louis Rodani, Isahel, Prince of Liliputians, Fair Helen, Wilhelm Nitsche, Little Eva, Garnet, Rosetta, Adonis, White Aster, German Favourite, Mabel, Gem, Titania, Professor Bergeat, Amelia Barbier, North Light, Nemesis, Princess Sophie, Comtesse Von Sternberg, and Favourite. Messrs. H. Cannell & Sons were

worthily awarded second honours, though the boxes were too crowded, and Messrs. Rawlings Bros. third. For twelve blooms, Pompons, Mr. Turner was again in the foremost place; and in addition to those named in the larger collection he exhibited The Khedive, Little Arthur, Torstmeister, Gschwina, Lady Blanche, Little Duchess, and Coquette. Messrs. Keynes & Co. were placed second, Messrs. Paul and Son third, and Mr. John Henshaw fourth.

For twelve single hlooms Mr. C. Turner was once more first. The same attractive mode of setting up is adopted as with the Pompon collections exhibited by him; the flowers are both fresh and bright, and consisted of Yellow Gem, Foxhall, Mauve Queen, Huntsman, Canary Bird, Cocceinea, Paragon, Lutea, Firefly, Bronze Queen, Alba, and The Baron. The flowers were kept in position with wire passed round their stems. Second, Messrs. Keynes & Co. with Paragon and several good unnamed seedlings. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, third, and Messrs. H. Cannell & Son fourth. For six singles Messrs. Turner, Keynes & Co., Ware, and Gilbert and Son were awarded first, second, third, and fourth respectively.

Mr. Turner secured the leading prizes with plants in pots, followed by Mr. Cannell in all the classes, except in that of varieties of *Dahlia gracilis*, in which Mr. Cannell secured the prize offered by Mr. Moore.

The following new varieties were awarded first-class certificates:—*Condor* (Keynes).—A Show variety of a distinct and pleasing colour, light cinnamon; bloom compact, neat and symmetrical.

Senator (Keynes).—A dark self Show flower, purplish maroon suffused with violet; hloom solid, compact, and of good form.

Hope (Keynes).—An attractive Show variety; colour pinkish lilac, very soft; petals cupped, and bloom of good outline.

Earl of Ravensworth (Harkness).—A large Show flower, but petals thin and bloom not compact; colour light fawn, and more singular than beautiful.

Gem (Turner).—A deep scarlet Pompon variety, shown in a pot; plant free; blooms compact, and apparently of faultless form. Rich and good.

Evening Star (Keynes).—Single; velvety maroon, with smooth overlapping slightly recurved petals. Very rich and glowing.

Acquisition (Keynes).—Single; body of petals crimson scarlet margined with bright scarlet; bloom small, neat, and petals of good substance.

White Star (Ware).—Single; flower small, neat, well formed, almost pure white, with a stout stalk which shows the hlooms to advantage. A variety of much promise, and sure to become popular.

It should be added that the champion Show bloom in the Exhibition was Herbert Turner, a beautiful white flower, in Mr. Turner's stand, and the champion Fancy hloom Flora Wyatt, exhibited by Mr. Walker.

Several miscellaneous exhibits contributed to the effect of the Show. Mr. Ware staged some hundreds of hlooms of single Dahlias in great variety. Some dotted in moss, which did not look well; others on boards that looked better; still others in finger-glass looking better still; and last and best of all, arranged in vases and glasses, representing them as eminently suitable for dinner-table decoration. The curious and almost black Zimapani and the small neat *gracilis* "went well" together, and Juarez, or the Cactus Dahlia, had a rich effect in large vases. Of this Mr. Turner had a fine stand, and Mr. Cannell several bright groups of it with a companion, the white Cactus Dahlia, named Constance, and the floriferous Fire King, or Glare of the Garden; he had also fine Cockscorns, Petunias, Marigolds, Tuberous Begonias, and Zonal Pelargoniums. Messrs. Saltmarsh & Son of Chelmsford staged splendid Asters of the French Pæony and German Quilled type, and Mr. Walker had also excellent hlooms of these beautiful autumn flowers.

Mr. Thomas Moore efficiently discharged the duties of Secretary, and the Committee have good reason to be satisfied with their first grand National Dahlia Show.

EARTH-CLOSET MANURE.

ON reading the letter of "J. B. K." on earth-closet manure, at page 218 of your last issue, my first impression was that I must have committed some error in the way I had put the matter. My next reflection was, What a capital letter "J. B. K." has written! and I concluded, finally, that whilst there was some reason to be impressed with the letter, he had really proved that the mistake, if there was one (which I began to doubt), was none of my making, and that so far from differing from me his letters really supplied strong confirmation of all that I had suggested—viz., that Dr. Voelcker was undoubtedly right in the low standard which he assigned to earth-closet manure, and that unless used on the spot where it is produced, or close to it, the cost of carriage of such a weak manure more than eats up its real value. It seems to follow, if this be the case, that Mr. Taylor's preference for it for Vines, even if the manure be an advantageous one to use in his own case, could not generally be followed with advantage. There was no discrepancy, in fact, between "sound science as represented by Dr. Voelcker and sound practice (advice?) as represented by Mr. Taylor," because Mr. Taylor's advice, at least, was not sound, even if his practice in his own peculiar circumstances (earth-closet manure being more readily available than a manure better adapted intrin-

sically for his purpose) was judicious. Dr. Voelcker's opinion is that the high value put upon earth-closet manure by market gardeners and others, a value varying from £1 to £3 per ton, did "not rest on any solid foundation," and it is clear that this opinion is expressed irrespective of the quantity that may be used in this or that case. Now, as "J. B. K." states that the value of the manurial addition to a ton of soil is only 2s., there would appear to me to be no difference between Dr. Voelcker's opinion and his own on this point, nor any question between "J. B. K.'s" opinion and mine. At all events, so long as market gardeners, and especially growers of Grapes, are made aware that whether they want to employ half a ton per acre or 100 tons, they are purchasing a manure worth only from one-tenth to one-thirtieth of the sum which it has generally been esteemed by the practical man to be worth, the object of my inquiry will be fully answered and the necessity for it be justified.

I must, however, be allowed to ask "J. B. K." two questions before leaving the subject. Dr. Voelcker's statement, be it remembered, is that "the earth of an earth-closet manure, after it has been once used" (the condition in which Mr. Taylor has employed it), "is not more valuable for manuring purposes than in its original dry and sifted condition."

1st, Is it the intention of "J. B. K." to affirm that a good garden soil can be enriched in nitrogen, or potash, or phosphoric acid, or in any other constituent of plant life, by admixture with a manure which is more deficient in these elements than itself? I can scarcely imagine so.

2nd, Does "J. B. K." consider that earth-closet manure is really superior to that prepared by Messrs. Arnold & Co., for instance, for manuring Vines? We will suppose, of course, that the manure is, if necessary, to be mixed with a sufficiency of earth to prevent any possible ill-consequences of using artificial manures of fair strength.

In reply to Mr. Taylor's last letter on this subject (p. 200), I can assure him that nothing was further from my intention than to take an unfair advantage of anything that he had written; still less should I think of attempting to hold such a man up to ridicule, and I am grieved that he should think it possible. I did not suppose that any such deduction could have been drawn from what I had written; and I must, in self-defence, remind Mr. Taylor that "SINGLE-HANDED" having written, "Perhaps the most valuable part of Mr. Taylor's experiments was his attempt to do without lime," he (Mr. Taylor), in replying to my first letter on earth-closet manure, adds to his answer, "I wish to tender my thanks to 'SINGLE-HANDED' for his papers on manuring. I hope your readers will turn his advice to good account." I can assure Mr. Taylor that it had never entered my head that he could have overlooked such a fact as that the Vine, or any other plant, could prosper if lime were excluded absolutely from the soil as well as from the manure employed; nor did I quote the mistake which he had made with any other object than to prove to him, that as on his own showing he at least could not be considered infallible, I might be pardoned if I ventured to doubt the value of his recommendation as to the best mode of manuring Vines.

I have only further to add, May I always be as ready to confess my mistakes, and they are not a few, as Mr. Taylor's treatise proves him to be, and may they carry with them as useful lessons to others as "his attempt to do without lime" as a manure! May I also show myself less sensitive about those I commit to friendly criticism!—INQUIRER.

EDGE HALL.

My visit lasted nearly four hours, and yet it was nothing more than a peep, for so great is the multitude of plants under the fostering care of Mr. Wolley Dod and his gardeners that each can only have a mere glance in time so short.

Edge Hall is the quiet and happy home of a host of plant gems, both curious and handsome—some in a marvellous state of development, and in nearly all cases they are doing well. The great variety and arrangement is particularly appreciable. There is what Mr. Dod calls "his long border," and a wonderful border it is, mainly filled with quite hardy flowers, a few half-hardy plants being intermingled with them, such as single Dahlias, Pelargoniums, &c., and the effect was such as could scarcely be equalled. The great variety and blendings of the flowers are simply charming, and is likely to continue until the frost puts an end to all flowers; and with the aid of early-flowering bulbous plants, which are now in a dormant condition, there has been a rich display of flowers in this border ever since March. There are masses of Carnations, Phloxes, Sunflowers, Fuchsias, Japanese Anemones, Coreopsises, Polemoniums, Rudbeckias, &c., flowering most profusely, and can only be fully appreciated when seen. Remarking upon Sunflowers reminds me of a beautiful variety of the common

large annual species, which was very plentiful. The colour was clear yellow and very striking.

There are other borders and beds of various forms and sizes; very numerous, too, they are, and all filled. One circular bed on the lawn filled with *Salvia patens* in full bloom was well worth seeing, and rarely have we seen it in such state; and what a grand plant it is when well done, and how sad it is that it is employed so sparingly in our gardens! Close by this bed is one of *Lobelia cardinalis* and fulgens, the former with its green leaves and the latter with its deep crimson foliage surrounding it. What a picture is this bed, with its long spikes of deep crimson flowers, rarely equalled in floriculture! The same plant was happily employed in pots, with Marguerites, to decorate the entrance to the front door of the Hall.

The rockeries, of which there are several, are all well stocked with plants, alpine and others, a large number of which are in beauty; they will be showy for a long time to come, and possessing enough of interest to please most people. The last rockery Mr. Dod constructed is noteworthy on account of the method of arranging the stones, so that they interlock and support each other. This rockery is planted with many very choice and rare species, and it has a new appearance about it, as the plants have not nearly covered the rock; in fact, I really think Mr. Dod has too much stone exposed, as many of the plants will be a great number of years covering them, which, in my opinion, is undesirable, and the primary object of the rockery is lost sight of.

Amongst the great variety of plants in flower notes were made of the following, as being very pretty and useful for the hardy flower garden. *Veronica longifolia subsessilis*, with its long spikes of deep blue flowers, was very plentiful. It is easily increased from cuttings, and is extremely showy. *Asteriscus maritimus*, a Spanish plant which Mr. Harper Crewe informed me grows very near the sea, is very dwarf and spreading, with golden-yellow leaves about 2 inches across, similar in form to a *Gazania*. It is not quite hardy, but cuttings are easily rooted at this season of the year, and they should be kept in store pots in a cool house through the winter, then planted out in a warm position in gritty soil. It is a most effective rock plant, flowering very freely. *Helenium pumilum* is also showy, with bright yellow flowers. *Geranium argenteum* grows more freely than ever I saw it; on the new rockery it was very fine with its silvery foliage and light pink flowers. A well-drained position suits it well. *Physostegia speciosa*, though tall-growing, is a good plant with light rosy-purple flowers. *Bupthalmium salicifolium* is also a showy Composite, with narrow leaves and yellow capitula about 1½ or 2 inches across. *Veronica tenuifolia*, or sometimes called *parviflorum*, is particularly handsome. It has a bushy habit, about 18 inches high, freely branching, with very numerous racemes of light pink flowers. For the rockery, border, or even table decoration this is a most charming plant, and when seen must be appreciated. *Salvia Pitcheri* has sky-blue flowers very freely produced. Among the Sunflowers were *Helianthus cucumarifolia*, *decapetalus*, *maliflorus* (single and double-flowered forms), *rigidus* (*Harpalum rigidum*), *doronoeoides*, &c., all of which are very ornamental and effective. The latter is particularly useful for cutting. Among the Coreopsises were *C. lanceolata*, or *grandiflora* as it is frequently called, *auriculata*, and *tenuifolia*, the former two of the best border plants possible to have, and the latter a much more slender-growing and dwarfer plant with linear leaves and small flower heads, is very suitable for the rockery. *Achillea Filipendula* is one of the best Millfoils, with elegant foliage and broad heads of canary-yellow flowers, about 2 feet high.

Mr. Dod has succeeded in establishing the capricious *Tropæolum speciosum* against a north wall; it is flowering freely, and a lovely plant it is! *Campanula haylodensis*, a hybrid raised by Mr. Anderson Henry, is very handsome and free-flowering; but at Edge Hall the foliage turns brown, which is not the case in other places where I have seen the plant growing. A very old plant is *Tournefortia heliotropoides*, but not quite hardy, with, as its name implies, cymes of Heliotrope-like flowers. The single-flowered variety of *Spiræa Filipendula* is much more elegant than the double form so frequently seen, and certainly more serviceable for floral work. The true *Vernonia corymbosa* is very charming. What a number of *V. corymbosas* there are! As at Malpas, it is of dwarf and spreading habit, with branched spikes of sky-blue flowers, most profusely borne, with wiry stems. It is a very pretty rock plant, and if Mr. Dod will strike the young shoots in spring it may be more frequently seen in future. *Cyananthus lobatus* seems to thrive remarkably, as there are several strong plants in flower, and I understood it had ripened seeds this season. It is a charming plant, with sky-blue funnel-shaped flowers on trailing stems. *Montbretia Pottsii*, with its orange-scarlet spikes of flowers, is very showy. *Epilobium Fleischeri* is very like *E. Dodonia*, and I think they are identical. Dwarf in habit and very floriferous, it is just the plant for the rockery or front portion of the border, with pinkish-purple flowers. *Senecio pulcher* and *S. niveus* are both fine plants, the former well known, the latter with silvery foliage and cymes of yellow flowers. It is rather rambling in growth, but if planted in a hot and dry position it is very pretty. The old *Phygelius capensis* is very pleasing with its scarlet tubular flowers, and it was in full bloom. *Arnebia echioides* was well in flower for the second time this season. It is a very handsome and interesting plant, and may be increased by seeds or cuttings taken off with a heel and rooted in a cold frame. *Prunella Webbiana* is very striking with reddish-purple flowers. *Hypericum empetrifolium* is a charming

little species about 9 inches high. Is not this plant synonymous with *H. Coris*? It is most attractive on the rockery. Close by it was the rather tender *H. egyptiacum*, which is also an elegant dwarf bush with yellow flowers. *Androsace lanuginosa* Mr. Dod regards as one of the best alpine, and it was in excellent condition, enjoying a thoroughly well-drained position. There were also good patches of *A. sarmentosa* and *A. helvetica*. The little Arctic Bramble (*Rubus arcticus*) was flowering freely, and has done so for some months. The rare *Phlox amœna* was doing well and in flower—quite a treat in itself to see such a rarity so happy. *Neja gracilis*, with a multitude of yellow capitula, is showy; it needs, however, some protection during winter. Cuttings should be struck in the autumn and just protected from frost. *Erigeron philadelphicus* is one of the best in the genus; the flowers are small but very freely produced, extending over some months. *Linaria anticaria* exhibited a great variation, but the best variety has purple bars on the white corollas, and in that state it is very desirable. *L. pallida* is also very pretty, but quite a weed at Malpas. The lovely *Coronilla iberica* was still in flower, and it is certainly the best of the hardy species, the bright yellow flowers blending with the foliage so happily. *Campanula soldanellæflora* or *C. rotundifolia* fl.-pl., the latter being more precise, is, when the flowers are double, a very handsome plant; but it degrades very readily, and seedlings from it exhibited very curious-formed petals, quite narrow and lengthened out, and very dissimilar to the plant which produced the seed. *Anemone vitifolia* is a distinct species much in the way of *A. japonica alba*, and in connection with *A. japonica* is undoubtedly the progenitor of the latter.

I might go on much further, but space forbids, and I have only to add that the hospitality met with rendered my visit to Edge Hall gardens a most enjoyable one.—X. Z.

SCARCITY OF CATERPILLARS IN 1882.

ALTHOUGH there have been published this year in your Journal and elsewhere complaints about injury done by caterpillars to fruit trees and to some plants in the kitchen garden, such as the Brassicaceous species, these have only come from a few districts. We have no general returns that can be tabulated yet; but so far as we can judge by communications received from various gardeners and entomologists, caterpillars of the order *Lepidoptera*—i.e., those which, if they thrive, develop into butterflies or moths, have in our gardens, as also in the open country, been less abundant than usual. To the stroller in any direction away from the crowded streets hardly an object is more familiar than the Hawthorn hedge. We see the well-trimmed compact hedge surrounding a garden, orchard, or shrubbery, and, perhaps more pleasing to the eye, the somewhat ragged mixed hedge, with its memories of many scrambles belonging to youthful days. Almost, as a matter of course, we expect to see the Hawthorn more or less disfigured by the webs of those small pests, the caterpillars of the Winter Moth (*Cheimatobia brumata*), and of the little Ermine (*Ypmomeuta podella*), besides exhibiting traces of the jaw work of the Lackey (*Bombyx neustria*), the Goldtail (*Liparis auriflua*), and of other allied species. In 1881 some of these insects were very scarce in some districts, nowhere, I think, in average numbers; and as several of them also attack fruit trees our fruit crops escaped one mischief, though they had to suffer from "blight" in another form and from unfavourable weather. The effects of the latter, in fact, prevented the Hawthorn showing fully the advantage it had gained through the scarceness of caterpillars, since it, in common with many shrubs, felt the hurtful influence of cold and rough winds in early summer. We frequently notice that if plants escape damage in one direction they fare rather badly in another; the Currant offers an instance this season. It is not uncommon for it to be partly stripped of its leaves, when gardeners have been unobservant or careless, by the caterpillars of the Gooseberry Moth (*Abraxas grossulariata*). This spring they were comparatively few in number upon those bushes I was able to examine; but then, unfortunately, I found that the Black Currant especially had been severely injured by more than one species of aphid in various gardens. The leaves were curled and blackened by these pests, which, if allowed, as they sometimes are, to proceed undisturbed, not merely disfigure but also weaken the vitality of the bushes.

It has been shown by incontrovertible evidence that a scarcity of caterpillars may be expected to follow such a season as was that of 1881-2—an autumn, that is, of heavy and frequent rains, followed by a winter mild nearly throughout, and with very little snow. A large proportion of our *Lepidoptera* are unfavourably affected by this weather, whatever may be the stage of life in which they pass the winter. Should this be the egg stage, the result of unseasonable mildness is the bringing-out of the young caterpillars too soon, perhaps before their food is sufficiently advanced, or at least before the rough weather of early spring has passed away. If a species is in hibernation as a caterpillar much moisture during autumn or winter will often kill a great part of

the brood, and they, too, are tempted from their retreats too early. In the pupal or chrysalis stage a mild season also acts as an accelerator, not salutarily, and many decay through excessive damp, or are devoured by insect enemies, which are rendered unusually active by the absence of cold. Those that hibernate, as butterflies or moths, have been found to appear in less than the average numbers after such winters as the last. They are tempted from their retreats by mild or sunny days, and fail to get back to them from various causes; often, indeed, they are devoured by birds or spiders on the alert for prey.

But, on the other hand, it should be stated that certain species are hardly at all affected, or seldom, by the variations in our English winter. This is the case with some of the subterranean caterpillars living deep down, and also with the bulk of those feeding within plants or under bark. Amongst the smaller tribes of moths, such as the *Tineæ*, the seasonal influences are less notable than amongst the larger species.—J. R. S. C.

BATH FLORAL FÊTE.

SEPTEMBER 6TH AND 7TH.

A MORE picturesque or favourable site for a horticultural exhibition than the Sydney Gardens, Bath, could scarcely be desired, and a great part of the success of the shows held there is doubtless due to the beauty of the surroundings furnishing so strong an additional attraction. Though of moderate extent, the surface of the grounds is greatly varied, rising considerably towards the north, whence charming glimpses of the town may be obtained. The gardens, moreover, are very convenient of access, being within a short walking distance of the principal station and the busiest portion of the town. Some care, too, is exercised to avoid as much as possible the prevalent formality of arrangement at exhibitions generally, for at Bath the tents are placed singly in different parts of the grounds, though this would prove a disadvantage in unfavourable weather. The arrangement of the exhibits, too, is well carried out; but the system of affixing the prize cards is antiquated and cumbrous in the extreme, and the Committee might with considerable profit give some attention to the South Kensington method, which is incomparably superior to the one they adopt.

The Exhibition held last week is the third of the season, but was well attended both by exhibitors and visitors, the latter being especially numerous, as the weather proved extremely fine—a most agreeable surprise after the heavy rains of the preceding day. All the chief classes were well represented, one large marquee being devoted to Fuchsias, stove and greenhouse and miscellaneous plants; another of similar size to Ferns, smaller classes, and cut flowers; a third to fruit; and the fourth to stands of flowers, bouquets, &c. In all sections the exhibits were distinguished by their freshness and good quality, the Fuchsias and cut flowers being unusually fine; but some of the fruit classes were not quite so satisfactory as might be desired, especially the white Grapes, which, though large, were very unripe.

Fuchsias.—Very rarely are Fuchsias shown so extensively and well as they are at Bath, and in that neighbourhood where their culture is quite a speciality with many gardeners, who are also perhaps favoured to some extent by the climate. Some dozens of handsome pyramidal specimens 6 to 9 feet high, vigorous in the extreme, evenly but not formally trained, and most profusely flowered, produced an effect that might be termed unique; indeed, these plants constituted the leading feature of the Show. Five classes were devoted to them, the principal being that for nine specimens of distinct varieties, in which the first prize of ten guineas was awarded to Mr. J. Lye, gardener to the Hon. Mrs. Hay, who has long had a great reputation for his skill in Fuchsia culture. His plants were 8 or 9 feet high, and about 3 feet in diameter at the base, conical in form, and abundantly clothed with foliage and flowers; in fact, they were as even and beautiful a collection as could be desired, and well deserved the honours accorded them. The varieties were Mrs. Bright, Thomas King, Mr. Brooke, Arabella, Doel's Favourite, Lye's Favourite, Annie, Lustre, Mr. Hooper Taylor, and Charming. Mr. G. Snell, gardener to Mrs. Counsell, was a close second with well-grown plants, but his collection as a whole was not quite so even as the preceding, though they were very profusely flowered, especially the varieties Arabella, Load Me Well, Conspicua, Elegance, and Doel's Favourite. Mr. H. Jones, gardener to General Doherty, followed with healthy plants, and bearing abundance of flowers, but the specimens were less symmetrical than the others; Load Me Well, Gazelle, and Conspicua were the most noteworthy.

For six plants Mr. G. Tucker, gardener to Capt. W. P. Clarke, took the lead, staging abundantly flowered specimens, Load Me Well being especially handsome, large, and healthy, but several of the others, such as Miss Emily Doel, Doel's Favourite, Arabella, and Queen Victoria were rather uneven. Mr. W. J. Mould, gardener to E. C. Bryant, Esq., was placed second with plants that were not formerly trained but vigorous, flowering freely; Elegance, Arabella, and Conqueror were very fine. Mr. W. C. Drummond was third, staging good examples of Arabella and Doel's Favourite. The best collections of four were from Mr. G. Garraway; Mr. J. Riddick, gardener to Mrs. Pinder; and Mr. G. Hallet, gardener to Mrs. West, all

of whom staged praiseworthy plants, those from the first-named being especially well-flowered and vigorous. For a single specimen of a light-flowered variety Mr. Snell gained the chief prize with a beautiful example of *Marginata* about 6 feet high, not too rigidly trained, and well clothed with foliage and flowers. The finest single specimen was, however, that in the class for dark varieties, Mr. G. Garraway securing the chief award with a plant of *Elegance* 8 feet in height and about 4 feet wide at the base, well covering the pot, and thus having a much better appearance than most of the others, which were rather too narrow and formally cylindrical. The plant was as healthy and vigorous as could be desired, gradually tapering to the apex, and was grandly flowered.

Stove and Greenhouse Plants.—Though not so extensively shown as at some earlier exhibitions this year, the majority of the plants staged in these classes were distinguished by a most pleasing freshness and health, several being specimens of considerable merit in every respect. The leading class was that for nine plants, in which Mr. J. Cypher, Cheltenham, easily won the premier award with one of the most beautiful collections he has staged this year, all the plants being even, vigorous, and exceedingly well flowered. *Ixora Williamsi*, very neat, about 3 feet in diameter, had over three dozen fine trusses; *Ixora Duffi* had twelve full trusses; *Erica Marnockiana* and *E. Irbyana* were in beautiful condition; *Allamanda nobilis*, *A. Hendersoni*, *Clerodendron Balfourianum*, and *Stephanotis floribunda* were similarly good, the last named being about 4 feet in diameter, admirably trained in globular form, and finely flowered. Mr. Tudgey, gardener to J. F. G. Williams, Esq., Worcester, was a close second, but his plants were not equal to the preceding, except, perhaps, his admirable examples of *Dipladenia hybrida* and *Erica Uhria superba*, both of which were in first-rate form; *Dipladenia amabilis* and *Anthurium Andreanum*, the latter with seven fine spathes, were also notable. Mr. J. Mould was third, *Dipladenias Brearleyana* and *profusa* being the best. The best collection of three plants was contributed by Mr. T. Jolly, who was deservedly awarded the first prize for very neat specimens of *Bougainvillea glabra*, *Stephanotis*, and *Cassia corymbosa*, the last-named of globular form, about 3 feet in diameter, and bearing a great number of its bright yellow flowers. Mr. Long, gardener to C. Gardiner, Esq., had the best single specimen stove plant, a very fine example of *Ixora Williamsi*, 4 feet high, healthy and well-flowered. In the corresponding class for a greenhouse plant Mr. J. Cypher won the principal award with a globularly trained plant of *Rhododendron Princess Royal*, which was finely flowered and in superb health, being greatly admired by all the visitors.

Fine-foliage Plants.—The entries in the two classes devoted to these were not numerous, but all the collections were of great merit, especially in the class for sixteen specimens, which formed an important part of the display in the large Fuchsia marquee. In this, as with the stove and greenhouse plants, Mr. Cypher took the lead with a grand lot of specimens mostly of good size, as vigorous as possible, and the *Crotons* magnificently coloured. Amongst them those most notable for their size and fine condition were the *Palms*—*Latania borbonica*, *Kentia Canterburyana*, and *Latania rubra*, the last-named being in superb condition, as healthy a specimen as has ever been shown. *Croton Queen Victoria* 4 feet in diameter was richly coloured, as were also *C. fasciatus* and *C. majesticus*, which was about 5 feet high and proportionate diameter. *Cycas Normanbyana*, *Cycas revoluta*, and *Yucca variegata* were all similarly notable. Mr. Tudgey again secured the second place with plants of great size, but in some cases slightly different in colour, apparently from excessive vigour; *Crotons Queen Victoria* and the broad-leaved *Morti* were, however, unusually fine. *Thrinax elegantissima*, *Areca Verschaffeltii*, *Seaforthia elegans*, *Cordyline indivisa*, and *Cycas Normanbyana* were well grown and effective. A large potful of *Sarracenia purpurea* was another remarkable specimen, the plants being very highly coloured. Mr. W. C. Drummond followed with neat healthy specimens, amongst which *Pandanus javanicus variegatus* and *Theophrasta imperialis* were the most remarkable.

Ferns were not represented by any very large specimens, but a number of particularly healthy small plants were staged in some of the collections, though the effect was in a great measure spoiled by their crowded appearance. The chief class was for twenty plants, and in this Captain Clark was placed first with fresh and healthy samples; *Adiantum gracillimum*, *formosum*, *farleyense*, and *peruvianum*; *Gymnogramma Laucheana*, *G. peruviana cristata*, and *Selaginella Martensi variegata* being the principal species represented. Mr. G. Smith, gardener to J. Kemp, Esq., followed with similar plants, *Asplenium Belangeri* and *Gymnogramma calomelanos* being well shown. Mr. W. C. Drummond took the third prize with small but healthy specimens. In the class for twelve exotic Ferns Messrs. W. J. Mould, H. Brooke, Esq., and F. P. Cox were the prizewinners, all contributing vigorous plants of moderate size. British Ferns were exhibited by Messrs. A. T. Hall and F. P. Cox, who gained the first and second prizes in that order, both staging large collections, including several rare forms.

Achimenes were well shown by Mr. W. Marchant, gardener to J. Murch, Esq., who won the leading award in the class for six specimens with neat examples about 18 inches in diameter and surprisingly well flowered. *Mauve Queen*, *hirsuta*, *longiflora alba*, *Carl Woolforth*, *Edmund Boissier*, and *Dazzle* were the varieties, forming a very good collection. Mr. H. Jones was second, his best specimen being

Ambroise Verschaffelt. Mr. A. Hawkins, gardener to Thos. Jolly, Esq., followed with fair specimens; but this exhibitor staged his best productions in the class for Cockscombs, gaining the premier award with well-grown plants, the "combs" being very large, arched, and richly coloured. *Pelargoniums*, *Gloxinias*, *Tuberous Begonias*, and *Petunias* were numerous, but the last-named were the most remarkable, the plants being trained on flat circular trellises and very freely flowered.

Cut Flowers.—An important feature in the Exhibition was formed by the numerous collections in the classes for cut flowers, all being well represented. For twenty-four bunches of stove and greenhouse flowers Mr. Long was the most successful exhibitor, winning the first prize with some handsome blooms of *Ixoras*, *Francisceas*, *Poincianas*, and *Rondeletias* amongst others, Mr. G. Howe, gardener to Lewis Fry, Esq., M.P., Mr. F. Mould, and Mr. Webb followed in that order. *Dahlias* were contributed by Messrs. H. Bush, W. Shaw, G. Horsel, and J. Hobbs in very fine form; the *Gladioli* from Messrs. Stephen Brown, A. A. Walters, J. Wheeler, and Bird, gardener to S. Dobree, Esq., being also of considerable merit. *Roses* were very bright, fresh, and of good substance, especially the stands from Messrs. Perkins and Son, Coventry, Mr. W. Smith, Kingswood, Bristol, Mr. John Mattock, Oxford, and Messrs. Cross & Steer, Salisbury. Both German and French *Asters*, too, were superbly shown, particularly by Messrs. W. S. Harding, J. Nation, H. Hooper, A. A. Walters, and G. Garraway. Table decorations, bouquets, and stands of flowers all added greatly to the extent and interest of the Show.

Fruit.—This is invariably shown extensively and well at this meeting, and with few exceptions there was no diminution in either quality or quantity. Much interest was centred in the class for a collection of twelve varieties of fruits exclusive of Pine Apples. Here the competition was remarkably close, only a point or two separating the first three collections. Mr. W. H. Bannister staged fair examples of *Bowood Muscats* and *Black Hamburgh Grapes*, good fruits of *William Tillery* and another *Melon*, and *Chancellor* and *Noblesse Peaches*, *Pitmaston Orange* and *White Newington Nectarines*, *Victoria Plums*, *Morellos*, *Figs*, and *Doyenné Boussoch Pears*, all in good condition, and was awarded the first prize. Mr. G. Howe, gardener to L. Fry, Esq., M.P., though awarded the second prize might well have been placed equal first, his admirable collection comprising good *Bowood Muscats* and *Lady Downes' Grapes* (the latter not being in season militated against him), good *Melons*, *Peaches*, *Nectarines*, *Plums*, fine *White Turkey Figs*, and poor *Apricots*. Mr. A. Miller, gardener to W. Long, Esq., M.P., followed with a fine collection but lacking variety. His *Black Alicantes* were fine, but *Black Hamburghs* were weak. He also staged a fine dish of *Sir C. Napier Strawberries* and good *Peaches*. Mr. W. Fisher was awarded the fourth prize.

For eight bunches of *Grapes* in four varieties the premier award went to Mr. W. Nash, gardener to His Grace the Duke of Beaufort; but in point of quality this exhibit was surpassed by the collection staged by Mr. W. Hazard, gardener to J. Chaffin, Esq. Mr. Nash had fine examples of *Black Alicante*, *Black Hamburgh*, *Muscate of Alexandria*, and *Lady Downes*, while the second-prize lot staged by Mr. Hazard consisted of perfect examples of *Meredith's Alicante*, and good *West's St. Peter's*, *Madresfield Court*, and *Lady Downes*. The third prize in this class went to Mrs. S. Broadley, and the fourth to Mr. H. Jones, gardener to General Doherty. With three bunches of *Black Hamburgh* Mr. J. Gibson, gardener to Mrs. Miller, was first, being closely followed by Mr. Miller, both staging creditably. Mr. H. Atherston, gardener to the Misses Brackenridge, was a good third. For two bunches of *Black Hamburgh* Mr. T. King, gardener to R. V. Leach, Esq., was first, his bunches being small but even and good. The second prize was awarded to Mr. Lintern, gardener to W. Butler, Esq., and the third to Mrs. W. Willis. Mr. J. Gibson had the best *Muscate of Alexandria Grapes*, the bunches being of good size and the berries even and fairly well coloured. Mr. G. W. Shelton, gardener to W. R. Waite, Esq., followed with very fine bunches but scarcely ripe; while Mr. Nash's very fine third-prize bunches were quite green. In the Any other white class Mr. J. Loosemore, gardener to W. Cooper, Esq., took the lead with *Foster's Seedling* in good condition; Mr. W. Willis following with small bunches of *Buckland Sweetwater*, and Mrs. S. Broadley took the third prize. In the corresponding class for black varieties Mr. Nash easily secured the first prize with handsome perfectly coloured *Black Alicante*. Mr. W. Hazard followed with good *Madresfield Court*, the third prize going to Mr. Miller. *Melons* were shown in great numbers, but the majority were very indifferent. Mr. Bannister staged the best green-flesh—a good example of *William Tillery*, the remaining prizes going to Mr. T. Tilley, gardener to Col. Colgrave, Mr. J. Weston, gardener to the Rev. C. C. Layard, and Mr. W. Burridge in the order given. Mr. Nash, Mrs. Broadley, Mr. E. T. Pocock, and Mr. H. Jones were the winners in the class for Any other variety of *Melons*. *Peaches* and *Nectarines* were well shown. The best dish of nine fruits of the former was staged by Mr. S. Cottel, variety *Royal George*; Mr. G. Pymm, gardener to J. Goldsmith, Esq., following with *Walburton Admirable*. Mr. Nash staged *Barrington* in good condition, and was placed first in the class for six fruits. Messrs. T. King, H. Lewis, and J. Riddick were the other successful exhibitors in this class. Mr. G. Pymm with highly coloured *Lord Napier* was first for nine *Nectarines*, Messrs. W. Carpenter, W. Nash, and W. Winters securing the remaining prizes. In the class for six fruits Mr. T. King took the

lead with good Prince of Wales; Mr. H. Lewis, gardener to B. Castle, Esq., following with Pitmaston Orange; the third prize going to Mr. A. McKay, gardener to R. Warmesley, Esq. Plums were well shown in the classes devoted to them. Messrs. J. Lye, A. Beavis, A. T. Hall, and H. Jones received the awards as named for Green Gages; while for any other dessert variety Mr. J. Beryer took the lead with well-ripened Coe's Golden Drop, the remaining prizes going to Mr. W. Long, gardener to C. Gardiner, Esq., and Mr. T. King. With a culinary variety Mr. J. Carpenter was first, Messrs. A. T. Hall and J. Ricketts taking the remaining prizes, the large fruited variety known as Fonthill or Pond's Seedling being the favourite.

Pears were shown in great numbers and good in quality. Mr. W. Winters took the lead with three dishes, the varieties being Williams' Bon Chrétien, Beurré d'Amanlis, and Albertine. The remaining prizes were awarded to Messrs. A. Beavis, R. Martin, and W. J. Smith, all staging creditably. Single dishes were staged by twenty-seven exhibitors. The first prize went to Mr. R. Martin for Williams' Bon Chrétien, the second to Mr. E. Hall for Beurré d'Amanlis, the other prizewinners being Messrs. E. Thomas and H. Beavis. Apples were scarcely so plentiful as usual, the only variety extensively shown being Lord Suffield. The best six dishes were staged by Mr. Beavis, these consisting of Tankard Codlin, Blenheim Pippin, Hollandbury, Lord Suffield, American New Town, and Ribston Pippin. The other prizes were taken by Messrs. W. J. Smith, A. T. Hall, and J. Goddard. There were thirty-six dishes in the class for a culinary Apple, Lord Suffield being the prevailing variety. The prizes were awarded to Messrs. G. Pymm, W. Shellard, H. S. Dutton, and E. Salter in the order named. Mr. Pymm was also first with a single dessert variety with Golden Pippin, Mr. J. House following with Kerry Pippin. The other prizes were taken by Mrs. Beard and Mr. H. Beavis. Morello Cherries were well shown by Messrs. F. Cox, H. Jones, and E. T. Pocock; Filberts by Messrs. W. Burridge, E. Salter, and R. Martin; and Nuts by Messrs. W. Fisher, J. Goddard, and W. Burridge, the prizes being awarded in the order named in each instance.

Vegetables.—These were well shown by both gardeners and cottagers, the exhibits in both instances being most creditable. The gardeners' class for twelve varieties was particularly good. Mr. H. Scott was a good first with a collection consisting of Autumn Giant Cauliflowers, Improved White Celery, Trophy Tomatoes, Telephone Peas, Champion Scarlet Runners, International Kidney Potatoes, Queen of the West Marrows, Improved Reading Onions, Early Six-weeks Turnips, and Ward's Improved Green-leaved Beet. Mr. W. G. Tylee was a close second, his collection including very similar varieties. The third prize was awarded to Mr. G. Smith, and an extra prize to Mr. F. March. Messrs. M. Barnfield, J. Pollard, gardener to C. J. Pictor, Esq., and W. Willis were the successful exhibitors of nine varieties of vegetables; and Messrs. G. Ricketts, G. Horsell, and J. Lye of six varieties, the exhibits generally being very meritorious.

Miscellaneous exhibits, though not very numerous, were of noteworthy merit, the most important being the following. The Roses, Tuberous Begonias, Dahlias, and Clematises from Messrs. G. Cooling and Son, Bath, formed a fine group at one end of the plant tent, and were greatly admired. Mr. G. Garraway, Lower Swanswick, Bath, had some fine single Dahlias; Messrs. Cross & Steer, Salisbury, blooms of the white Clove Carnation The Governor. Mr. H. Hooper of Bath had large stands of single Dahlias and Pansies.

ORCHIDS IN SEPTEMBER.

WATERING and damping-down will require to be very carefully done now. It should be attended to before noon, and the houses allowed to become dry, ventilating freely on every available occasion, closing the East Indian, Mexican, or Cattleya and Dendrobium houses about 3 P.M., and in the cool house the ventilation may be reduced an hour later.

The Dendrobiums which have finished their growths, such as *D. crassinode*, *D. chrysotoxum*, *D. Pierardii*, and *D. Wardianum*, should now be removed into a cooler and drier atmosphere. *Calanthe vestita rubra*, *C. vestita lutea*, and *C. Veitchii* are producing their spikes. They should be kept near the glass, and will be greatly assisted by a liberal supply of liquid manure, which will ensure a good display of blooms next month. *Cattleya bicolor* is bearing its spikes of from eight to ten pale green, rich purple-lipped flowers. *Cypripedium Ashburtonæ*, *C. Crossianum*, *C. barbatum purpuratum*, *C. Harrisianum*, *C. Roezlii*, *C. Sedenii*, *C. vexillarium*, are now finely in bloom.

Dendrobium bigibbum now bears its rich rosy purple blossoms. This requires considerable warmth and moisture, and thrives well exposed to the sun. *D. chrysanthum* is rich with its drooping spikes of lovely golden flowers, whose beauty is best seen when the plant is suspended in a hanging basket. *D. formosum* is exhaling a delicious perfume from its pure white flowers with yellow-centred lip. The scarce *D. triadenium* is bearing its pretty trusses of small white flowers, which continue in perfection for about a fortnight, and are extremely useful for cutting. *Lælia Perrinii* and *P. major* with their beautiful rosy lilac flowers are blooming finely, and last about three weeks.

The Miltonias are making a good display, the following being

very conspicuous—*M. bicolor*, with its white flowers with violet-spotted lip; *M. Clowesii*, with chocolate-barred yellow blooms with violet-spotted lip; *M. candida*, yellow, white-lipped flowers; *M. Moreliana*, deep violet Jonquil-scented blossoms; *M. Regnelii*, white and rose-coloured flowers; *M. Regnelii purpurea*, delicate rose-coloured blooms with purple crimson lip; *M. spectabilis*, creamy white with violet and white lip. These Miltonias are best grown in shallow pans with good rough fibrous peat, from which the earth should be shaken, charcoal and sphagnum moss, with a good supply of water. They grow well and flower freely on blocks, but require more attention as regards dipping when grown in this way.

Odontoglossum rubescens is a pretty small-flowering Odontoglossum, and is flowering well now, and when grown in a mass is very effective. It proves very useful for cutting, and is of easy culture. A rich display is at present obtained from the white purple-spotted flowers of *Odontoglossum Andersonii*; the brown-spotted light green blooms of *O. bicktoniense*, with white or rose-coloured lip according to variety; the large, rich yellow, whitish-lipped flowers of *O. grande*; the pure white crimson-sprinkled blooms of *O. nævium*; the straw-coloured flowers of *O. Schlieperianum*; and the numerous delicate blossoms of *O. Pescatorei* with their charming mixture of rose and white.

Oncidium Papilio, with its butterfly-like bright yellow and brown coloured blooms, is in good condition, as is also *O. ornithorhynchum* with its masses of pretty rosy white flowers exhaling a delicious odour. *O. varicosum* is pushing up its spikes, promising a fine display shortly.

Phalaenopsis amabilis has its bluish white flowers. *P. cornucervi* with its greenish yellow white-lipped blooms, and *P. rosea* with its dozen or more of rose-coloured blossoms, are also beautiful at this season.

Vanda Batemanii, *V. cærulea*, *V. lamellata*, *V. suavis*, *V. tricolor*, and *V. tricolor insignis* are all in bloom, the last three flowering regularly twice a year, the colours of the flowers being richer in hue in autumn than in the spring.

Zygopetalum Gautierii with its bright green and brown violet-lipped flowers, and *Z. gramineum* with white and purple blooms, are both in condition.—ORCHIDIST.



INSTEAD of giving a mere list of prizewinners at the INTERNATIONAL SHOW that opened at Edinburgh yesterday (Wednesday) by telegraphic report, we have decided to give a complete critical report of the Exhibition next week, as this will, we presume, be most agreeable to our readers, and certainly of greater service to them than a skeletonised account of the awards.

— THE CATALOGUE OF EXHIBITION ROSES of the National Rose Society is a very useful compilation. The Sub-Committee appointed to prepare the work have been guided by the following principles:—1, To admit but very few Roses which are known to be of extremely delicate growth. 2, As regards the newer varieties, to insert only those which have been grown extensively enough for an accurate estimate to be formed of their value. 3, In bracketing Roses as synonymous, to be guided neither by foliage nor habit of growth, but simply by the similarity of flowers. Upwards of a hundred Hybrid Perpetuals are named alphabetically, and accurately and soberly described; upwards of forty Teas and Noisettes and one Bourbon Rose—the extremely useful Souvenir de la Malmaison. The catalogue can be had post free for six penny stamps from the Hon. Secretaries, Rev. H. H. D'Ombra, Westwell Vicarage, Ashford, Kent; and Edward Mawley, Esq., Lucknow House, Addiscombe, Croydon.

— MESSRS. J. VEITCH & SONS, King's Road, Chelsea, have sent us a copy of an Italian edition of their "MANUAL OF CONIFERÆ," which has been translated by Signor Giovanni Sada of the horticultural firm of Sada, Milan. It appears to have been

faithfully rendered, is well printed, and will form a valuable addition to Italian horticultural literature.

— WE have received the schedule of prizes of the *HARBORNE AND DISTRICT POTATO EXHIBITION*, which is to be held on the 15th and 16th in the Masonic Hall, Harborne, near Birmingham. A silver cup value £10 is provided for twelve varieties of Potatoes, and three prizes in money are offered in each of the twenty classes. Messrs. Sutton, Messrs. Webb, and Mr. Merris also give special prizes for competition. Mr. G. Stacy, York Street, Harborne, is the Hon. Secretary of the Society.

— IN a note on *LETTUCES* an experienced gardener says Webbs' Summerhill and Suttons' Marvel are his two favourite kinds. They are both large, well-flavoured, and crispy. Cabbage Lettuce for summer and Cos Lettuces for winter are what he endeavours to provide. He further remarks:—"Clean open surfaces and plenty of space between the plants or crops are rules which should be well attended to in the kitchen garden this autumn, as most of the plants are inclined to be soft in growth, and if a severe winter comes on crowded tender crops it may leave us without vegetables."

— *MESSRS. JAMES CARTER & Co.* have sent us specimen blooms of their select strain of *EMPRESS PETUNIAS*. These flowers are representative of a collection of nearly ten thousand plants grown in pots for seed in their nurseries at Perry Hill. The variety is very great, and we know not which to admire most—the pencilled, lace-edged, green-edged, or double rosette forms. All of them are undoubtedly very fine, the diversity of colour being extraordinary, the markings of the rayed flowers well defined, while the selfs and edged varieties, both double and single, are well formed and of good substance. We never saw a more beautiful collection.

— A *CORRESPONDENT*, writing in reference to the *APPLE CROP*, observes:—"The American Apple crop will be even less than the abnormally poor one of the past year. The excessive rainfall at what is known to growers as the setting-time destroyed the extraordinary promise of the spring. The English crop is the worst seen during the last ten years, and prices will rule high accordingly. The news from Canada, however, is of a more cheerful character, and producers and exporters have the prospect of high prices and corresponding profits."

— *MESSRS. JAMES DICKSON & SONS* of Chester write:—"We send for your inspection a small sprig of our new *CUPRESSUS LAWSONIANA* 'SILVER QUEEN.' It is perfectly hardy, and of neat, compact, pyramidal growth. Of course you will take into consideration that in Chester we have much smoke from railway works, &c., which affect the appearance of all variegated plants in our nurseries. We have been awarded a first-class certificate for it by the Royal Horticultural Society." The spray has an attractive silvery appearance, and is certainly not defective in vigour. Good specimens on lawns will be highly ornamental, and there is reason to believe that the variety will prove worthy of the honour it has received.

— *MR. F. A. FAWKES*, Mansion House Buildings, 4, Queen Victoria Street, writes:—"In travelling about the country I have met with numerous gardeners who have expressed a desire to purchase my book on 'HORTICULTURAL BUILDINGS,' but could not afford to do so (the published price being 10s. 6d.). Actuated by a desire to assist the fraternity as much as I can, I beg to intimate that I shall be very pleased to place at your disposal a hundred copies of the above work for distribution to any *bonâ fide* gardeners who may choose to apply to you for them at 3s. each copy (which is under actual cost price). Any applications by post must be accompanied by 1d. extra to pay the postage of the book."

— *RELATIVE* to a good *WHITE GLADIOLUS* for planting with *G. brenchleyensis*, required by "A. B.," a correspondent recommends Mrs. Neville, which is ivory white faintly flaked with violet, and is described as a free grower, cheap, and effective. Mr. Kelway also recommends the same variety as suitable for the purpose in question.

— "W. B. H." desires to know the name and address of the firm or gardener who laid out the flower beds in front of Westminster Abbey.

— *ALLUDING* to *VEGETABLES*, a correspondent observes:—"The season of 1882 will long be remembered as being very unfavourable for some crops, such as Apples and Potatoes, but vegetables generally are by no means scarce or of inferior quality. We are inclined to regard the season as most favourable for vegetables, as the crops are abundant and better than they usually are in drier seasons."

— *MR. H. G. SMYTH*, horticultural sundriesmen, 17A, The Coal Yard, Drury Lane, W.C., has sent us a sample of *ORCHID PEAT*. It is a clean, sweet, compressed, yet yielding mass of fibre, just what Orchid growers delight in when potting their plants. It is of a texture for receiving any quantity of fibre, while the chance of its being rendered sour is extremely remote. Wherever Orchids are grown a supply of such material as this is indispensable, as with it and good attention the plants will flourish.

— "NORTH YORK" writes:—"We are experiencing some of the effects of our unsettled climate. *Helleborus olympicus* and *H. atro-rubens* are now in full bloom, and others are throwing up their flower stems, giving us the idea of autumn rather than Christmas Roses."

— THE same correspondent observes—"We have on a south wall a very fine tree of the *WINTER NELIS PEAR*. In early summer it was much affected with aphides; then followed mildew, next the falling of the leaves, and now, the beginning of September, it is breaking into young growth and is in full bloom, being left without fruit this season. In all probability we shall be left without next year also."

— THE correspondent who sent us a spray of *KENNEDYA MARRYATTÆ*, which was figured in this Journal on page 341 of the last volume, informs us that he has saved some seed, which he will be happy to forward to anyone interested in the plant. Applications to be forwarded to this office, addressed to the Editor.

— THE *INTERNATIONAL POTATO EXHIBITION* will be opened on Wednesday next at 1 P.M. by the Lord Mayor, who will be accompanied by the Sheriffs and the promoters of the Exhibition. Luncheon will be served at 2 P.M. The Judges are desired to be ready for work at 11 A.M. precisely.

— "J. H." writing on *WASPS* says—"Bad as the season has been in fruit, wasps have come to devour what little there is. Trap as we may—turpentine, paraffin, sit up and dig out in the night, the cry is, They come. Up to the second week in August we scarcely saw a wasp, but to our surprise they came, and they stay night and day; and the only consolation I have is that they will leave us when they have devoured what we have—the thieves."

— THE Annual Cryptogamic Meeting of the *EPHING FOREST NATURALISTS' FIELD CLUB* will be held on Saturday, the 23rd inst., in the northern section of Epping Forest (High Beach, Monk Woods, Theydon Woods, &c.) The following well-known botanists have promised their valuable aid as referees and directors at the meeting:—For Fungi—Dr. M. C. Cooke, M.A., F.L.S., Mr. James English, C. B. Plowright, Esq., M.R.C.S. (of King's Lynn), Dr. Spurrell, Worthington G. Smith, Esq., F.L.S., F.R.H.S.,

M.A.I., Dr. H. T. Wharton, M.A., F.L.S. For Mosses, Lichens, and Phanerogams—Professor Boulger, F.L.S., F.G.S., Dr. Braithwaite, F.L.S., F.R.M.S., &c., E. M. Holmes, Esq., F.L.S., W. W. Reeves, Esq., F.R.M.S. The Club will assemble in the Woods about one o'clock, the rendezvous being the large sedgy glade in Monk Wood. Tea will be provided for members and visitors, after which a discussion of the gatherings and discoveries of the day will take place, and the following papers and notes will be read: "Some Observations upon the Reproduction of the Uredines," by C. B. Plowright, M.R.C.S. "On the Rhizocarpeæ," by Prof. Boulger, F.L.S., F.G.S. "On Fairy Rings," by Worthington G. Smith, F.L.S., F.R.H.S. "On Marine Algæ," by E. M. Holmes, F.L.S. "Fungi as Food," by Dr. Wharton, M.A., F.L.S. Persons desirous of joining the party can obtain all particulars and instructions by communicating as soon as possible with Mr. W. Cole, Buckhurst Hill.

— "SALOPIAN" writes:—"Would some of your correspondents state if they consider YELLOW A GOOD COLOUR TO USE IN TABLE DECORATIONS under gas or any artificial light? I have seen it stated, I believe by Mr. E. Luckhurst in the Journal, that it is not a good colour to use, while several of my friends who have been prizewinners assert that it is. Perhaps this question may elicit information from one or two sources that would be conclusive."

— IN reference to the variability of the ROSE MADAME GABRIEL LUIZET, "DUCKWING" writes:—"Possibly the character of this Rose varies under different circumstances. On my two original plants purchased on Manetti stocks in 1879 I have about a dozen buds and blooms; on nine standards budded in 1880 and 1881 I have a single bloom among them. On Magna Charta, which its raiser considers doubtful as a Perpetual, I have eight blooms on one stand, one on another, and none on the remaining eighteen." "A NORTHERN AMATEUR" also writes:—"A plant of Rose Madame Gabriel Luizet, from which I formerly had one or two beautiful blooms, is at present set with five buds, two of which should expand within a week." And the Rev. J. A. Williams, Alderminster Vicarage, sends us two flowering shoots of this Rose, stating, "You will see where I have cut flowers earlier in the season. I have but four plants of this Rose, and but one of them is really a Perpetual. I have budded from this one only. This one tree is a thorough Perpetual." Mr. J. Brown, Great Doods, Reigate, also writes:—"In a recent issue 'D., Deal,' expressed some doubt as to the above Rose being perpetual. I beg to say that I have cut two blooms of it during the last few days, and have other buds showing. It has also flowered recently in a neighbouring rosarian's garden; therefore it has a tendency to be perpetual, but not so free as many varieties. No doubt by budding from those shoots which flower in autumn would tend to make it more perpetual."

— THE July number of the *Agricultural Students' Gazette* (Royal Agricultural College, Cirencester) contains an article by Professor E. Kineh on the SOY BEAN (*SOJA HISPIDA*). This Bean, of which there are a dozen or more varieties known in the East, is very largely used as an article of food in Japan and China, where it is manufactured not only into soy, now exported in considerable quantities to Europe, but also into bean cheese and other forms of food. The Soy Bean in its proximate composition approaches more nearly to animal food than any other known vegetable production, being singularly rich in fat and in albuminoids, and it is therefore a valuable adjunct to the food of the almost vegetarian Japanese. Of late years, especially since the Vienna International Exhibition, many efforts have been made to acclimatise this Bean in various parts of the European continent, chiefly in Hungary and Germany. France and Italy have also attempted it, and some of the experiments have been fairly

successful. We notice that Professor Kineh is trying to grow some of the varieties in the botanic garden at Cirencester; and though our climate is probably too uncertain and the temperature often too low for most of the varieties to attain perfection, still if any of them could be acclimatised a valuable leguminous cross would be added to our present list. The paper contains detailed analyses of the Bean as grown in different countries, of several of the foods made from it, of its straw, which is a useful fodder, and of the ash of the bean and straw.—(Nature).

CANKER IN MELONS.

THIS is often very troublesome among late crops of Melons, and is most prevalent among the, apparently, most healthy and vigorous plants, and especially so in dull weather. The plants look the picture of health until a bright day comes, when they suddenly flag, and no attention will revive them. But the experienced cultivator will detect the disease on its first appearance, when the bark takes the form of a brown spongy substance, generally at the base of the stem first, and rapidly spreading upwards and inwards. Immediately this is seen scrape the diseased parts clean with a knife and apply hot lime, rubbing it in with the finger and thumb until a good coating of it adheres to the stem. If taken in time this will generally stop the disease, but sometimes a second or third application is necessary. At the same time stop all luxuriant shoots, keep the house dry, give only enough water to prevent flagging, and plenty of fire heat in dull weather, with ventilation in proportion.

I lately saw one of the most successful instances of Melon culture that has ever come under my notice at Messrs. T. Frost and Sons, the Bower Nurseries, Maidstone. The plants were growing in a span-roofed house running north and south on the west side, and were planted in a very small portion of soil about 4 inches deep by 15 inches wide, placed on the surface of a pit filled with coal ashes, &c., which answered the purpose at other times of a cool bench to stand plants on, and was almost as firm as concrete; but I have no doubt the roots had penetrated it, and derived a certain amount of sustenance from it. The plants were carrying a good crop of fruit of a useful size.—W. H. DIVERS, *Burghley*.

SOME INQUIRIES.

I AM desirous of knowing how to proceed with seed of *Tropæolum speciosum*. This plant has been remarkably fine this season, having grown through the last winter, began flowering in early summer, and still continues. It is the admiration of all who see it, and is now ripening seeds. Will some of the readers of the Journal be kind enough to say when and how is the best time to sow the seed and the mode of treatment, as I am anxious to raise some plants? As I have had many inquiries relative to establishing my plant, I hope this beautiful climber will soon be found in all gardens, as it ought to be.

Tuberous Begonias.—These have proved the most effective of our bedding plants this season, and now, though the weather is anything but favourable, they are the gayest of the gay. I am anxious to increase them in their separate colours; can I do this by cuttings and divisions, or will there be a possibility of their coming true from seed? I expect to see them in the foremost ranks of bedders, numerous as plants are for bedding purposes.

Antirrhinum versicolor.—Years ago we used to have this as an annual, and it was thought much of by many, but I have lost sight of it for some time. I have been trying for some years to renew my acquaintance with it, but I cannot find it in any seed list, or hear of it by inquiring. Can any reader tell me anything of it?

Corydalis glauca.—This plant seems to have disappeared. We used to have it sow itself and flower in the spring. It was distributed by the Horticultural Society many years ago. It is one of the very best of our hardy annuals. I should be glad to hear of its whereabouts.—J. H.

ONIONS.—These have had many stops and starts this year, but on the whole the crops are well developed, the bulbs being large as a rule but very soft. Too much rain and sudden sunshine has caused many of the finest to split and decay in some cases. Trebons has done this to a great extent. The best way is to pull all such up that are observed swelling a little too much to one side: indeed all which have attained a fair size now may be pulled up at once and dried. This may not be easily done in the open, but an airy shed will do as

well. Those with much soft green top should have part of it twisted off in taking them up. They will dry quicker after this has been done.—M. M.

CHRYSANTHEMUM MAXIMUM.

IN many gardens for some weeks past there has not been a more striking plant than this fine Chrysanthemum, which during August and September produces its large white flowers in such numbers that the foliage is almost hidden. Particularly handsome is this plant in one of the borders at Hampton Court, where

several clumps at intervals amongst the numerous other occupants have an excellent effect. The flowerheads are of considerable size—3 inches or more in diameter; the outer florets broad, pure white, and of great substance, the centre florets being bright yellow. It is of easy cultivation, and in rich soil grows very strongly, forming a large bush-like clump of imposing appearance.

CRYSTAL PALACE FRUIT SHOW.

WHETHER exhibitors are reserving their produce for the International Show at Edinburgh, whether the prizes were not sufficiently



Fig. 41.—CHRYSANTHEMUM MAXIMUM.

tempting, or whether fruit is not so good as usual this year, we know not; but this we know, it was far from being on the whole in high-class condition at the Show under notice. That there were good examples we readily admit, but many Grapes were not ripe, and much of the fruit had been seriously rubbed in transit; consequently there was an absence of cleanness and smartness that contribute so much to the attractiveness of an exhibition of fruit. There were, too, many blanks in the tables, which Mr. Head did his best to furnish with the materials at his command; but it was beyond his power to make the Show either a great or a good one.

Collections.—In the class for twelve dishes of fruit there were three competitors, Mr. Coleman being distinctly first with two good Pines,

fine 4-lb. Black Hamburgh and neat Muscat Grapes, with good dishes of Bellegarde Peaches, Victoria Nectarines, Jefferson Plums, Moorpark Apricots, Brown Turkey Figs, fine Pitmaston Duchess Pears and Morello Cherries, and a large Melon. Mr. Roberts, gardener to the Baroness Rothschild, Gunnersbury Park, was an excellent second, his Black Hamburgh Grapes being very good, and Madresfield Court fine in the berry; Pines and Pears weak; other dishes good. Mr. Goodacre, The Gardens, Elvaston Castle, was an extremely close third, the loss of points in Melons losing him a higher position. Five collections of eight dishes were staged, Mr. Oclee, gardener to the Marchioness of Lothian, Blickling Hall, Aylsham, securing the premier position with rather small but ripe Muscats and excellent Madresfield

Court Grapes, large Lord Palmerston Peaches, and fair Pitmaston Orange Neectarines, good Williams' Bon Chrétien Pears and Brown Turkey Figs, with small Green Gage Plums. Mr. Goldsmith, Sandhills, Bletchingley, was second with large but green Muscats, good Alicantes, a large Melon, and fair dishes of smaller fruits. Mr. Miles, Wycombe Abbey, was placed third with the ripest fruit of all, but generally wanting in size. Judged by the palate alone this collection would have had a higher position.

Grapes.—Collection of ten kinds, six black and four white. Mr. Roberts of Gunnersbury was distinctly first with a creditable collection. Alicantes excellently finished, Buckland Sweetwater well ripened, Muscats good, Muscat Hamburgh, fine bunches but irregular berries; Madresfield Court, excellent berries; Tokey, large; Alnwick Seedling, very fine indeed; Foster's Seedling, small berries; and good Black Hamburgs comprised the collection. Mr. Goodacre was a close second, Venn's Muscat being good, as also were Madresfield Court, Cannon Hall Muscat, Gros Colman, and Alicantes; but many of the berries were rubbed. In the class for five bunches there were that number of competitors, Mr. Allan, gardener to Lord Suffield, Gunton Park, being first with Alnwick Seedling, good; fine bunches of Chatsworth Seedling, the berries resembling Madresfield Court but smaller; Gros Colman, and Muscat of Alexandria. Mr. Coleman was second, all the varieties being black. The notable bunches were Black Morocco full and fine, with Alicante, Lady Downes, Madresfield Court, and Black Hamburgs all good. Mr. Elphinstone, gardener to E. Miller Mundy, Esq., Shipley Hall, Derby, had the third position, his Grapes not being ripe.

Mr. Coleman was first in the class for three bunches of Black Hamburgh, large (4 lbs.), with splendid and well-coloured berries. Mr. Holmes, gardener to T. Wallis, Esq., Sister House, Clapham Common, followed with medium-sized good-shaped bunches and fine berries. Mr. Herrin, gardener to J. W. Hibbert, Esq., Chalfont Park, Bucks, was a close third. Mr. E. Hill, gardener to Sir N. M. Rothschild, Tring Park, was clearly first in the Muscat class with large, full, ripe, well-shaped bunches; Mr. Johnson, Lamberhurst, Sussex, being second with large unripe examples; followed by Mr. Smith, gardener to W. H. Sewell, Esq., Warren Hill, Longton, Essex, with "lumpy" bunches but good berries. Mr. Goodacre staged small bunches, but with good well-coloured berries of Gros Colman, and secured the first prize; Mr. Holmes following with very small examples. In the Madresfield Court class Mr. Wallis was placed first of the six competitors with 2-lb. well-filled bunches and good ripe berries; Mr. Herrin being second with much larger bunches, and Mr. Goodacre an extremely close third. Only the first-prize Grapes were ripe in this class. Seven collections of Alicantes were staged; Mr. Howe, gardener to H. Tate, Esq., Streatham Common, being placed first with undoubtedly the best examples, said to have been cut from a Vine bearing a hundred bunches. Mr. Herrin and Mr. Elphinstone had the remaining prizes in this class, their productions being of nearly equal merit, but not ripe. It is noticeable that several of the white Grapes in the classes were shown on pink paper, which appeared to display them to the best advantage.

Pines.—For one Queen Mr. Coleman was first with a good well-ripened fruit; Mr. Ford, gardener to Earl Cowper, West Park, second; and Mr. Bailey, gardener to J. T. Drake, Esq., Shardeloes, third. The display of Pines was limited, several in the Show being of inferior quality.

Peaches.—For three dishes Mr. Roberts was placed first with Bellegarde, Barrington, and Belle Bance, all of good average size and well coloured. Mr. Ocle was second with Princess of Wales, Barrington (small), and Newington; and Mr. Miles third with Early Crawford, Bellegarde, and Late Admirable. Mr. Coleman would have been first in this class had he not inadvertently staged two dishes of the same variety. Seven collections were staged, but many fruits were small. For one dish Mr. Coleman was first with Bellegarde, splendid; Mr. Roberts second with Barrington; and Mr. Holliday, gardener to James Norris, Esq., Bletchingley, third. Eleven dishes were staged.

Neectarines.—For three dishes Mr. Coleman was an easy winner with Lord Napier, Stanwick Elruge, and Elruge, all very fine; Mr. Elphinstone and Mr. Goldsmith, Hollenden, Tonbridge, following as named with creditable examples. For one dish Mr. Coleman was again first with beautiful examples of Elruge, Mr. Ocle being second, and Mr. Richards, gardener to the Earl of Normanton, Somerby Ringwood, third, both with Pitmaston Orange.

Melons.—In the green-fleshed class Mr. Herrin was first with Hero of Lockinge. Mr. Knellar, Malshanger Park, second with an unnamed fruit resembling Golden Perfection; and Mr. George, Putney Heath, third with Hero of Surrey, all staging good examples. Fifteen fruits were placed in competition in this class. Ten were submitted in the scarlet-fleshed class; Mr. Herrin, and Mr. Barker, Hindlip Hall, being first and second with good fruits of Blenheim Orange, and Mr. Bailey third with Victory of Bristol.

Plums.—Twelve collections were staged in the class for three dishes; Mr. Fay, gardener to L. J. Baker, Esq., Haydon Hall, Pinner, being first with Emperor, Transparent Gage, and Belgian Purple—all good. Mr. Goodacre second with Washington, Jefferson, and Transparent Gage, the last-named very fine; and Mr. Coleman third with Kirke's, Emperor, and Jefferson—all good dishes. For a dish of Green Gage Mr. Fry was first; Mr. Lemmon, gardener to J. Omer Roper, Esq., Calcot Gardens, Reading, second with Calcot Green Gage; and Mr. Wells, gardener to R. Ravenhill, Esq., Windsor Forest, third with

Webster's Green Gage, ten dishes being staged in the class. For a dish of red or purple Plums Mr. Goodacre was first with Pond's Seedling, very large. Mr. Coombes, gardener to Sir Henry Meux, Bart., Sheen House, Surrey, second with the same variety; and Mr. Wells third with Victoria—a good class of eight dishes. The first prize, offered by Messrs. Cheal & Son for their new Melons, was awarded to Mr. Goldsmith, gardener to Sir W. Farquhar, Bart., Polesden Lacy, Dorking, who appeared to be the only exhibitor; and an extra prize of £2 was worthily granted to Mr. Neighbour, gardener to G. Wythes, Esq., Bickley Park, Bromley, for a collection of twenty dishes of fruit. This completes the classes of a Show which was decidedly inferior to many previous exhibitions we have seen in the Palace.

Several miscellaneous exhibits covered much space effectively, notably a great collection of Apples and Pears from the Waltham Cross Nurseries of Messrs. Paul & Son, comprising apparently about one hundred varieties of the former and half that number of the latter. Messrs. Cheal & Son, Crawley, Sussex, sent forty good dishes of Apples and Pears. From Calcot Gardens came twenty-four dishes of Apples and eighteen of Nuts. Messrs. Saltmarsh exhibited their fine new Apple The Queen; and Messrs. Atherton of Chatteris sent a new seedling Apple of the type of Fearn's Pippin, but darker in colour.

Flowers were also represented on the side stages, Messrs. Kelway staging ninety-six spikes of Gladioli—a fine display; Messrs. Wm. Paul & Son ten grand boxes of Roses in about a hundred varieties—one of the finest collections of September Roses we have ever seen. Excellent boxes of Roses also came from Messrs. Pauls of Cheshunt; and Messrs. John Laing & Co. staged a tasteful group of plants, composed largely of splendid varieties of Tuberous Begonias. Thus with this Exhibition in one nave and the Dahlia Show in the other the company had plenty to admire. The condition of the plants in the Palace, too, and their arrangement are very satisfactory, and the flower and carpet beds in the grounds highly attractive.

THE KINVER SEED FARMS.

ABOUT five miles from the Stourbridge station of the Great Western Railway is situated an establishment which possesses considerable interest for both agriculturists and horticulturists, as in a comparatively few years its productions have rendered the name of Messrs. E. Webb & Sons familiar to British farmers and gardeners throughout the empire. The district around Kinver is much elevated, diversified, and picturesque, some parts being finely wooded, and from Kinver Edge, as the highest point is termed, an extensive view of some very charming scenery can be obtained upon a clear day. The approach, too, from Stourbridge is a most agreeable drive in fine weather, which, unfortunately, I was not favoured with; but even under the depressing influence of a heavy sky and continuous rain it was impossible not to be sensible of what might be termed the latent beauty. With surroundings so attractive we find the Kinver seed farms occupying a space exceeding 1000 acres, open, high, and in every way admirably fitted for the purpose to which they are applied, the healthy vigour and sturdiness of all the crops well indicating not only the attention that is paid to them, but also the suitability of the soil and district for ensuring satisfactory produce. It is evident, indeed, in all departments that the great object of the firm is to secure the confidence of their customers by providing them with the best quality obtainable, and no efforts are spared that tend to this result. Messrs. Webb claim, and apparently with good reason, that they are the largest seed-growers in the kingdom, for together with the 1000 acres at Kinver, the greater portion of which is their own freehold, we are informed they have over 10,000 acres under crops in different parts of the country and on the continent; and the immense amount of seed raised on so great an extent of land can scarcely be realised, though some idea of the magnitude of a business which requires such enormous supplies may be gathered from the statement. Everything is on a large scale. Specially approved kinds of vegetables or cereals are grown by the hundred acres, and on one farm in an adjoining county to the head-quarters 400 acres are devoted to Potatoes and cereals. Turnips, Mangolds, Peas, and many others are similarly provided for, while the flowers for seed form an important department that is being rapidly extended.

To enumerate in detail all that is worthy of note upon the Kinver farms alone would require a volume, and will only be possible here to briefly glance at the chief features and the most important crops. As already indicated, Messrs. Webb pay great attention to the culture of cereals, Barley, Wheat, and Oats being largely grown, and some of the firm's selections in each have attained a high position in the agricultural world as reliable, prolific, and good quality varieties. Of the 153 acres devoted to Barley the principal portion is occupied with Kinver Chevalier and New Beardless, both bearing the name of this firm as a testimonial of their merit; 137 acres are appropriated to Wheat, the most notable varieties of which are "Webb's Challenge White," which was awarded the gold medal of France this year, and other prizes. Selected Golden Drop, Selected Square Head, and of Harcastle—all very promising, together with an Australian Wheat of fine quality now being acclimatised. Fifty-two acres of Webb's Challenge White Oats and 70 acres of Webb's Prolific Black Oats are also grown, and other good varieties in addition.

Turnips, Mangolds, and Swedes form another important feature; Webb's Imperial Swede, also known as "the Great Swede," the

Mammoth Long Red Mangold, and New Champion Yellow Globe Mangold, all three remarkable varieties that are much prized by cultivators having considerable space devoted to them, common Turnips also being grown in enormous quantities. Potatoes, it may be readily imagined, are similarly largely represented. In one portion of the farm forty selected varieties are grown chiefly for garden use, over 30 acres being devoted to these. Among them are four seedlings, the result of several years' careful crossing and selection, that will be distributed next year; they have been found to be of good quality, prolific, and disease-resisting. The Improved Schoolmaster, sent out by this firm, occupies 25 acres, and it is said to have yielded crops of 21 tons per acre under good cultivation. This is highly valued by many growers both for exhibition and the table, its even form fitting it for the first-named purpose, and its quality for the latter. In addition to those at Kinver Potatoes are grown in large quantities in other parts of the kingdom, the most favoured districts being selected.

Peas are strongly represented, but the bulk of these is grown elsewhere, over 800 acres being engaged for the purpose. The most interesting in connection with this crop on the home farm is the trial ground, where more than 120 varieties have been grown together for comparison, both for the satisfaction of the firm and their customers. All the best varieties in cultivation were represented, including Messrs. Webb's latest additions to these useful and much-prized vegetables. Such varieties as Kinver Gem, Triumph, Perfection, Electric Light, and Kinver Marrow, have given most satisfactory evidence of their merit even under so severe an ordeal as this. Other crops are similarly largely grown, such as Cabbage, Kale, Kohl Rabi, Carrots, Parsnips, Lupins, Comfrey, Giant Cow Grass, Colossal Italian Rye Grass, Seakale, Asparagus, Rhubarb, Strawberries, and Artichokes, some for seed and other for the roots. But it is unnecessary to refer at length to all these, as what have been already mentioned will indicate the general scope and extent of the business.

The trial ground—one of the most interesting and instructive portions of the farm to visitors—occupies considerable space, some thousands of varieties of vegetables and flowers being grown for comparison and selection. In this way not only have the firm abundant evidence to direct them in recommending particular sorts, but intending customers have also the opportunity of judging the relative merits and characters of all the most approved varieties. For example, taking the vegetables first, there are over fifty Lettuces, thirty Turnips, forty Onions, fifty Cabbages, and 120 Peas, besides Carrots, Parsnips, Mangolds, Beet, and innumerable other kinds. In each of these trials were new varieties or selections, several being very promising. New Summerhill, Immense Hardy Green, and American Gathering of the Cabbage Lettuces, and Superb Monstrous White amongst the Cos varieties, were very prominent and evidently useful forms. A new Cabbage of similar promise with a large firm heart was also noteworthy, but Webb's Emperor was exceedingly fine, and it is reputedly of quick growth, hardy, and early. Of Savoys, Webb's Little Wonder, a very dwarf compact form, Drumhead, and Marcellin, were particularly good. Of the Onions, Webb's Improved Banbury at once attracted attention by its size and handsome form, Red Globe, Italian Tripoli, Red Wethersfield, Trebons, and Naseby Mammoth being also noteworthy. Amongst several sorts of Parsley by far the best was a row of Webb's Giant Curled, which well merits its title, and as grown at Kinver a better sample of a good Parsley could not be desired. Early Six Weeks and New Early Purple Top were two of the leading varieties of Turnips, Chirk Castle also deserving mention; but the second named was particularly fine, and is much esteemed by gardeners who have grown it. So of all the other vegetables tried, something good was noteworthy in each; and it is only fair to state that in every case which came under my notice the varieties specially recommended by the firm well deserve the prominence accorded them.

Notwithstanding the heavy rains, that portion of the trial ground devoted to flowers was extremely bright, presenting masses of colour, which had a surprisingly fine effect. Large beds of white and crimson Candytuft, dwarf bright blue Lupins, *Linum grandiflorum*, *Clarkia pulchella*, *Godetias*, *Rhodanthes*, *Saponaria calabrica*, *Virginian Stocks*, *Tropæolums*, *Asters*, *Zinnias*, *Phlox Drummondii*, *Stocks*, and numerous other well-known annuals and popular garden flowers afford a diversity of tints that impart to the trial ground the appearance of a most extensive and brilliant flower garden. Of special excellence were the dwarf *Asters*, the flower-heads being large, full, and variously coloured, of the richest shades of purple and crimson to fine white. Sweet Williams, too, have a great space devoted to them, and the strain is one of considerable merit, the individual flowers of good size and form, richly coloured, and borne in dense heads. Marigolds, both African and French, are also a feature of much interest, the lemon and orange-coloured varieties of the former producing flowers of enormous size, and the beautiful striped blooms of the other type are neat in form and deeply coloured. *Tropæolums* are similarly well represented, the scarlet, spotted, Golden King, Crystal Palace Gem, and King Theodore varieties of the Tom Thumb section being the leading forms, the first very bright and the last extremely dark; all are compact growers and very floriferous. The Larkspurs, both double and single, and the dwarf Rocket type are grandly represented, very large quantities being grown to meet the demand existing for these popular and effective plants. The *Rhodanthes* are fine, other so-called Everlastings being grown in considerable numbers, the *Helichrysums* especially. Orna-

mental Grasses, such as the *Brizas*, *Agrostises*, *Lagurus ovatus*, and other favourites constitute another important feature. In fact, all the most useful garden flowers are grown in quantity, and by careful selection the various strains have been rendered highly meritorious. Indeed, the great attention paid by Messrs. Webb in recent years to this department of their business has resulted in a surprising development, which is annually increasing rapidly. Good evidence of this is afforded not only by the great quantities of plants grown for seed at Kinver, which only represent a portion of the stock disposed of, but also by the seed offices at Wordsley, the department appropriated to garden, flower, and vegetable seeds being on an extensive scale.

It should be added that, in addition to the flower and vegetable trials, considerable space is appropriated to testing the different mixtures of grasses for lawns and permanent pastures—a matter of great importance to both farmers and gardeners. Of other features possessing special interest for agriculturists may be noted the large herd of cattle and the flock of Shropshire sheep, which have obtained more than local fame.

The seed offices at Wordsley near Stourbridge are like the farms surprisingly extensive, several buildings of great size being devoted to the storing, cleaning, packing, and general business. The most important is a warehouse with five floors each 180 feet long, 60 feet wide, and 13 feet high, through which enormous quantities of seeds pass every year, and that £15,000 should be expended annually in postage and carriage is a striking indication of the extent of the demands which have to be met. The basement of this building is devoted to Potatoes in addition to another storehouse of great size. The first floor is for Clover seeds, and it is said that sufficient seeds for 150,000 acres of land have been sent out in one season. The second floor is devoted to grass seeds, the third to Turnip and Mangold seeds, and the fourth to cereals. Of the grasses seed for 75,000 acres, and of the Turnips and Mangolds for 140,000 acres are sent out annually, the cereal trade being similarly extensive. A portion of one of these floors is specially fitted up for the garden, vegetable seed, and bulb department, all the arrangements for the speedy execution of orders being most admirable. The export trade has assumed considerable dimensions in recent years, and consequently much space is devoted to the preparation and packing of seeds for the colonies and distant countries, while the elaborate machinery for cleaning seeds is another feature of interest. The manager's and clerks' offices occupy another spacious building, of which blacksmiths and carpenters' shops, stables, &c., complete one of the most perfect establishments of the kind in the country.

In concluding these brief notes it may be mentioned that Messrs. Webb also have an extensive flour and Hop trade, and with some relatives they are engaged in glass manufacture; but alike in all sections of their diversified and enormous business, their energy, attention, and earnest desire to provide articles of first-rate quality have gained them both wealth and fame.—VISITOR.

SILKWORMS AND SILKWORM REARING.—15.

(Continued from page 183.)

FIVE silkworms, out of the numerous insects of the Bombyx tribe that have been made the subjects of special experiment in the hope of finding out a rival to B. Mori, stand in a position of importance, either from the facilities afforded for rearing the worms, or from the texture and quality of the cocoons. Amongst others of less note we have described three of these—namely, *Attacus Mylitta*, the Tussock species of India; the handsome Chinese *A. Cynthia*; and the portly American *A. Polyphemus*. Although as yet only mentioned in passing, we must devote to the Japanese species, *A. Yama Mai*, a place in our series more ample than has been bestowed upon some of its kindred, because the insect is one that has received much attention from silkworm breeders and naturalists also. In fact, there are those who would have us consider it as only second in value to the Mulberry species; its silk, which is of a light green, being rather less fine and strong than is that of the insect which has supplied the civilised world with silk for many centuries. I fear, however, that the result of a variety of experiments in rearing the *Yama Mai*, which have been made in Britain by persons not lacking patience and skill, will not put this insect second to the other in the important particular of suitability to a life of confinement. B. Mori has always taken kindly to domestication wherever the Mulberry will grow. *A. Yama Mai* proves to be rather peculiar in habit through all its stages, and, if accounts are correct, variable as to its likes and dislikes while a caterpillar, therefore more likely to succeed when leading a life of freedom. The facts we shall have to adduce presently will show that the worms, while having this in their favour that they subsist upon our common Oaks, can scarcely be left exposed to the changes of our climate, though they might then be, to appearance, in a more favourable position than when under cover. On the other hand, it might certainly be argued that by perseverance within suitable districts the insect might be so far acclimatised as to breed from year to year where protection was afforded only under special circum-

stances. But could it be reared thus in sufficient numbers to afford a supply of silk? Concerning this we can at present say little, but we may hope that A. Yama Mai, amongst the newer silkworms that attract notice, will not have its claims overlooked, since there are countries where the silkworms have been reared in quantities, and what little English silk has been got is of good quality. Moreover, in this era of education it ought to be easy to "educate" a silkworm, and so modify its habits.

The Japanese name of the species has been adopted as its specific designation. Until about thirty years ago it was both unnamed and unknown in Europe. Travellers in its native region had reported that the Japanese obtained silk from two insects, although the silk yielded by A. Yama Mai does not seem to have been distinguished from that of B. Mori. Some stated that the profits arising from the silkworm which fed upon the Oak were all added to the imperial revenue, and others declared that the silk, on account of its excellence, was reserved for the Royal Family or the Court. At all events this fact was ascertained, that for some cause a death penalty was attached to the offence of conveying the Yama Mai out of the country. With questionable ingenuity, however, a few Japanese traders had obtained what were represented to foreigners as the eggs of this silkworm, but which were really small objects made from wood. At the beginning of the year 1861, a French fleet being off Japan, the attention of several persons was drawn to the beautiful texture of the silk produced by A. Yama Mai, although the Japanese put forth as one objection to the material that it would not take a dye, which assertion was afterwards proved contrary to fact. That year true eggs in small quantity were got by the French Consul-General at Japan, and sent to Paris. These were taken charge of in the Jardin des Plantes, and a part of the batch of eggs hatched during March, but died speedily, refusing all the leaves that were offered them. Seemingly, the worms had been forced out too soon by the temperature at which the eggs had been kept. More caterpillars emerged early in April. The food plant was still unknown: the Oak chanced to be one of the species now offered them, and it was found they would not eat its leaves. Out of the forty counted only an eighth—that is, five, spun very poor cocoons, and no moths emerged. A few eggs had, however, been given to an entomologist at Passy, and he obtained one caterpillar, which, under his care, produced a cocoon, and afterwards a fine moth, which was handed to M. Guérin Méville. This enabled him to give the species a name; some acquaintance had been made with its habits, but the breed could not be continued.

The prohibition of any export of eggs, and the penalty on detection remaining unaltered, put difficulties in the way of further experiments; yet two years later a fresh supply was transmitted to Europe by a Dutch gentleman, director of the Imperial School of Medicine at Nagasaki. M. Pompe van Meedervoort, and a friend of his, tried repeatedly to procure eggs of A. Yama Mai from merchants, naturalists, and silk-growers. All ended in disappointment. Then he bethought himself of trying to induce a pupil to obtain some, who happened to come from the district of Hirgo, where many of the silkworms were reared. The youth undertook to collect eggs at the risk of his life, and gave his teacher as many as he could get, this second supply thus coming by way of Holland to France. Some were kept in Holland; and in that country, as also in France and Germany, there have been both successes and failures, open to various explanations. An Austrian nobleman, Baron le Bretton, has been remarkably successful with the species, rearing many thousands of moths, the eggs from which have been much in demand, being more certain than those imported from Japan, for it should be mentioned that the old restriction has now been taken off. From several dealers in foreign insects, Japanese, German, and also English eggs of A. Yama Mai may be purchased. In 1865 the first English specimens were seen, and for some years subsequent to that date Dr. Wallace spared neither time nor expense in his endeavours to acclimatise the species. He reared the worms under a variety of conditions, and having distributed eggs to many correspondents chronicled the results, which he had to own were less satisfactory than he had hoped. But our friends on the continent tell us that we ought to do well with the insect in Britain.

Reserving further remarks upon its habits, we only add here that the moth bears a resemblance to its brethren of the genus *Attacus*. Our illustration (fig. 42) exhibits a rather small specimen. Some of them measure 6 inches or more across the wings, the males being the larger; their forewings are more hooked, and the antennæ very feathery. The ground colour of the wings is generally

yellow or orange, in some specimens shading into yellowish brown, or occasionally darker than that.—J. R. S. C.

ROYAL HORTICULTURAL SOCIETY.

SEPTEMBER 12TH.

SINGLE Dahlias and the collection of Apples and Pears from Waltham Cross constituted the chief features of this meeting, but other exhibits were not very numerous. The collection of Rose blooms contributed by Messrs. W. Paul were, however, especially worthy of notice, for rarely are Roses shown so fresh and bright at this time of year, particularly after so much rain.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. A letter of thanks was accorded to Messrs. Lane & Son of Great Berkhamstead for a collection of nine varieties of Cobnuts and Filberts, the finest being the Close Filbert, Kentish Cob, and Frizzled Filbert. Mr. Laxton, Bedford, sent examples of a white selection from Beauty of Hebron Potato even and good. He also sent fine samples of Girtford Giant Scarlet Runner Beans; fruits of two fine American Crabs named Dartmouth and Whitney, for which a vote of thanks was awarded; and a large fruit of the Red Betigheimer Apple of handsome appearance. Mr. C. Ross, Welford Park, Newbury, was awarded a vote of thanks for a new green-fleshed Melon named Emerald, of very good quality and well netted. Mr. Bonsall, Campsount, Doncaster, sent a Melon named Campsount Hybrid, a red-fleshed variety which was too far past its best to enable the Committee to form an

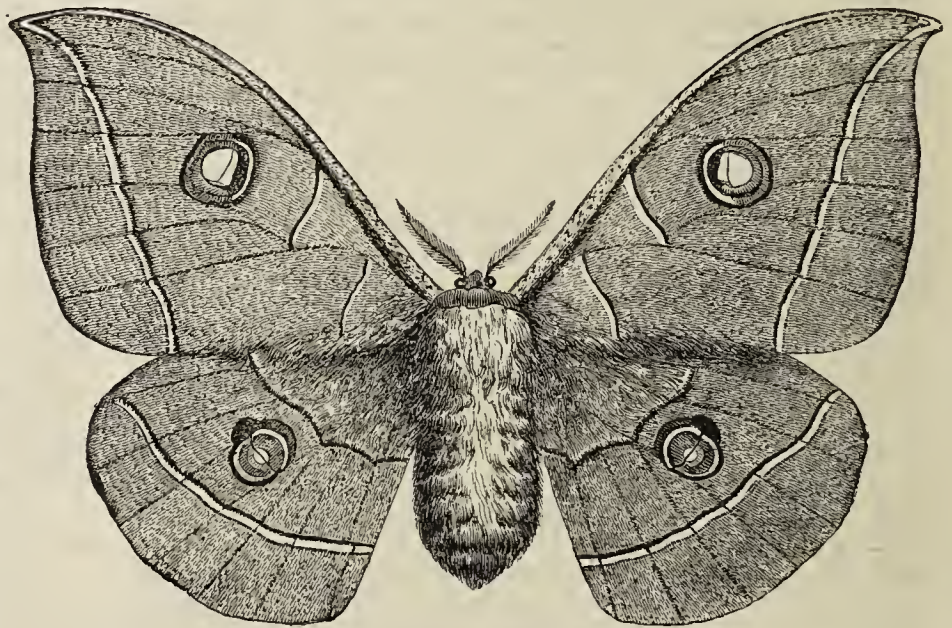


Fig. 42.—Moth of *Attacus Yama Mai*.

opinion respecting its merits. A cultural commendation was awarded to Mr. George, Putney Heath, for fine examples of Beurré d'Amanlis Pears and Duke of Albany Apples. A vote of thanks was awarded to Messrs. W. Paul & Son, Waltham Cross, for a collection of 250 varieties of Apples and Pears, the former being of fair size, but most of the Pears were much below the average.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Mr. T. S. Ware, Hale Farm, Tottenham, sent a large and beautiful collection of single Dahlias, comprising a great number of varieties, mostly of great promise. The small deep maroon Zimapani, the deep yellow Orangeman, the rich scarlet Fusilier, the maroon and rose-striped Pantaloon, Mauve Queen, White Queen, Violet, Yellow Queen, Christine, White Star, and Beauty of Cambridge were some of the best amongst many of great beauty. A collection of summer-flowering Chrysanthemums was also sent, the varieties represented including Souvenir d'un Ami, white and dwarf; Curiosity, mauve and neat; Andromeda, yellow; Scarlet Gem, deep red; and Chromatella, orange. Fruits of the peculiar *Pæonia decora* were also shown, the valves of the capsules being strongly recurved, displaying the black seeds on the scarlet interior. Sprays of the red-fruited *Actæa spicata* were also shown. Votes of thanks were accorded for both collections. Mr. Smythe, Basing Park, Hants, sent blooms of white and red Japanese Anemones. Messrs. Rawlings Bros., Romford, exhibited several seedling Dahlias, the best of which were Shylock, a bright scarlet Show variety; Sir B. Seymour, deep maroon; Golden Drop, yellow; President, yellow; Beauty of the Grove, rosy mauve; James Gilbert, deep scarlet; and John Henshaw, which was certificated. Messrs. J. Carter & Co., High Holborn, sent some fine examples of *Lilium lancifolium album*, *monstrosum*, *superbissimum*, and roseum, with *Hyacinthus* (*Galtonia*) *candicans*. The *Liliums* were very well flowered, and the *Hyacinthus* vigorous. A vote of thanks was accorded to Messrs. Hooper & Co., Covent Garden, for a large and beautiful collection of Pentstemons and single Dahlias, comprising some richly coloured varieties; plants of *Begonia diadema*, with its deeply cut white-spotted leaves; the rich-coloured *Tydaea Robert*

le Diable; and the pink-flowered *Nægelia Cassiopée*. A basket of plants of *Gynura aurantiaca* was also shown in very good condition.

Messrs. W. Paul & Son, Waltham Cross, exhibited eight boxes of Rose blooms in remarkably fine condition for the season, such well-known varieties as La France, Niphetos, Marie Baumann, Fisher Holmes, A. K. Williams, Madame C. Crapelet, Alfred Colomb, Senateur Vaisse, Duchess of Bedford, and Queen of Queens. Messrs. C. Lee & Son, Hammersmith, sent plants of *Cupressus Lawsoniana erecta viridis variegata*, very neat and with the variegation well marked. Examples of *Laurustinus marginatus aureus* were also shown. Mr. Morse of Epsom sent a plant of *Vanda cœrulea* bearing a spike of eight flowers. In addition to the plant of *Vanda Hookeri* shown by Mr. C. Hill of Tring Park, Herts, a specimen of *Dendrobium bigibbum superbum* with very large flowers was also shown, two spikes bearing each six flowers. Messrs. H. Cannell & Sons, Swanley, sent a fine stand of Show and Fancy Dahlias and blooms of a white *Juarezii* named Constance. A vote of thanks was accorded to Mr. J. Duffield, Winchmore Hill, N., for a collection of blooms of seedling Perpetual Carnations of extremely fine colour. Mr. Goldsmith, Hollenden, Tonbridge, sent plants of *Iresine formosa*, a variegated form of the *I. Lindeni* type which has been before noticed. A large collection of *Nægelias* was sent from the Society's garden at Chiswick, all the plants being in excellent condition and freely flowered. Some of the best were Bouquet, rose; Jocrisse, yellow; Eremeus, orange, red, and white; Greuze, and Franklin, scarlet.

First-class certificates were awarded for the following:—

Dahlia John Henshaw (Rawlings).—A beautiful Show variety. The blooms of moderate size but excellent in form, deep, full, symmetrical, of clear crimson purple hue.

Dahlia Ruby King (Hooper & Co.).—A single variety. Flowers of good size and moderately good form. Florets broad, but the colour, a distinct rich rosy tint, is its most striking characteristic.

Dahlia Christine (Ware).—A handsome single variety with finely formed flowers. Florets broad and rounded, of a soft rosy mauve colour. Quite a distinct shade, and very pleasing.

Vanda Hookeri.—This was shown by Mr. E. Hill, gardener to Sir N. M. de Rothschild, Tring Park, Herts. It is a species resembling *V. teres* in habit, with slender cylindrical stems and leaves. The flowers are borne in pairs on a peduncle 5 to 6 inches long, the sepals and petals being white suffused with rose, and the lip large, marbled and streaked with rich crimson on a white ground.

BEANS.—Of Kidney Beans Canadian Wonder is the favourite for open-air culture; Osborn's Forcing for pots. Of Runners Sutton's Giant White and Carter's Champion are the only kinds we have this season, and they both bear such quantities of fine large pods that there is no occasion to grow any others. Of Broad kinds the Seville Longpod is fine for the first crop; and a new variety we have from Messrs. Dicksons, Edinburgh, surpass all others for the main crop. It is most prolific. Some of its pods have lately been 16 inches in length, and the leaves are both numerous and well flavoured.—M. M.



KITCHEN GARDEN.

TAKE every opportunity in favourable weather to use the hoe amongst all growing crops, so as to prevent the necessity for hand-weeding, always a tedious and unremunerative process. At this season a few days suffice to mature the seeds of quick-growing weeds, such as Groundsel and Chickweed; and these, if allowed to ripen, are speedily scattered and become an endless source of trouble next season. Late Turnips should be moderately thinned, also Winter Spinach, so as to allow of the free development of the plants.

Take advantage of suitable weather to earth up Celery, and tie up Lettuce and Endive so as to secure well-blanching heads for salads. If Radishes are required late a sowing should be made in a frame, but not employing the lights until frost occurs. For forcing, Red and White Turnip, French Breakfast, and Wood's Frame are the most suitable varieties.

Onions which have been taken up and exposed a few days should be stored thinly on shelves in a dry room, the best ripened examples being tied in bunches or strung, so that they can be removed to a cooler situation in early spring to prolong the season of use.

Tomatoes on walls will be advancing fast, and should be well exposed to the sun to assist the ripening process, and all growth beyond and which shade the fruit must be removed. The more

forward clusters of fruit may be cut and laid on shelves or hung in a dry airy house to ripen, and this will assist the swelling of the later-set fruit. Tomatoes in houses should have the lateral growths pinched one joint beyond the trusses of bloom, and exhausted growths thinned out so as to encourage fresh growth in their place, and continue the plants in bearing if necessary through the winter, keeping the growths fully exposed to the light. Surface-dress the soil with rich compost as the roots protrude, and afford weak liquid manure in a tepid state occasionally. Artificial heat will be necessary to maintain a temperature of 55° to 65° artificially, advancing 10° to 15° from sun heat, affording on all favourable occasions a free circulation of air. Those needing a supply of Tomatoes in winter, and not having a house with plants already established, may utilise any spare house, such as a Melon house, either growing the plants in pots or bed as may be most expedient. Instead of raising the plants from seed, cuttings should be inserted, they striking readily in a moist genial atmosphere, close and shaded. Planted about 18 inches apart and trained with single stems to the roof wires, they will come into bearing quickly and afford satisfactory returns. Trentham Early Fillbasket has afforded very satisfactory results this season, and being very free would no doubt answer for winter work. Orangefield Dwarf and Vick's Criterion are excellent.

A first sowing of French Beans should now be made in pots, three parts filling the pots with good rich loam made moderately firm, inserting half a dozen beans around the sides of the pot, and about an inch deep. The pots (9-inch) should be well but not excessively drained. Place them in a house with a temperature of 55° to 65° artificially, and as near the glass as the growth of the plants ultimately admit without touching. Osborn's Forcing is very free, and Ne Plus Ultra excellent.

FRUIT HOUSES.

Pines.—As the natural influences under which young growing plants luxuriate are now rapidly declining, care will be necessary to prevent the growth becoming soft and attenuated, to avoid which a dried condition of the atmosphere should be maintained, even if fire heat has to be used when unfavourable weather prevails. Syringe only occasionally, and then early on fine afternoons. Attend carefully to the ventilation, opening and closing the house at 80°, above which ventilate freely, especially on warm sunny days, the minimum temperature at night being maintained at 65°. The bottom heat should be kept steady at 80° to 90°. Collect all the fruiting plants into a house suitable for finishing the fruit perfectly, encouraging those with the fruit swelling off with a liberal supply of heat and moisture, keeping the night temperature at 70° to 75°, and the day from 80° to 90°, closing the house at 85°. At the close of this month the most likely of the plants started in March last as suckers for fruiting early in next year, should be brought together where they can be given a comparative rest of about six weeks, which will insure their throwing up fruit at the required time.

Peaches and Nectarines.—The earliest forced trees will now be at rest, and should, if the lights have not been removed, be kept as cool as possible. If the house needs painting or repair the trees should be loosed from the trellis, and work of the description named proceeded with, otherwise the house should be thoroughly cleaned, and the trees, being dressed with an improved insecticide, secured in their positions to the trellis. Pruning, if former instructions have been carried out during the growing season, will be a mere trifle, simply removing any shoots interfering with the symmetry of the trees or where they are too much crowded; as shoots, no matter how long they may be, will, if well ripened, be studded with bloom buds to their points. The surface soil should be scraped off without interfering much with the roots, and fresh material added, making it firm. If there be the least appearance of the borders being dry afford a thorough supply of water, as any deficiency of moisture at the roots is a great incentive of the buds falling. Presuming the lights have been taken off, they may remain off some weeks longer, but as soon as the cold autumn rains set in they should be put on, as cold drenching rains are scarcely less inimical than a too dry condition of the soil. Those about to plant houses for early forcing should include Alexander, the earliest Peach with size to recommend it.

After the crop has been gathered from the late succession houses, the shoots that have borne fruit this season, and not being extensions, should be cut out, as well as any weakly growths calculated to crowd the trees too much, also other growths where too crowded should be well thinned out, so as to admit light and air freely to those retained and secure their thorough ripening. If the trees be vigorous and the autumn prove cold and wet, a little fire heat with a free circulation of air will materially aid in ripening the wood, but there must not be any attempt at ripening the growth by keeping the roots parchingly dry, although a drier condition of the border is permissible. Sufficient moisture must be afforded for keeping the foliage healthy until the wood is thoroughly ripe and the buds plumped. Red spider must be kept under by occasionally washing the trees from the syringe or engine.

FLOWER GARDEN.

Cuttings of bedding Pelargoniums must not longer be delayed insertion, and as the season is so advanced it will be best to insert them in cutting boxes or pans under the shelter of lights, giving all the air possible till cold wet weather sets in. Verbenas, Heliotropes, and similar plants will require the aid of a little bottom heat, keeping them close, moist, and shaded until rooted, then ventilate freely to harden them before winter. A sufficient stock of Alternantheras, Coleuscs, Iresines, Mesembryanthemums, and similar plants should be secured to afford the requisite cuttings in spring, these plants being best from spring-struck cuttings. The routine work will now be great, as, in addition to picking off bad flowers and foliage, the beds will require constant clearing of tree leaves. Run the machine over the grass frequently, and keep the walks as clean and firm as possible.

Herbaceous plants should be examined to remove all dead stems or stalks, tying up those that require it. Annuals may yet be sown of such kinds as Alyssum (Sweet), Candytuft, Collinsias, Eschscholtzias, Gilias, Nemophilas, Saponarias, Silenes, Virginian Stocks, &c., which come into flower in April or May of next year, and make a pleasing display.

Yew, Privet, and other hedges may yet be trimmed. Irish Yews, Cupressuses, Junipers, Retinosporas, &c., should be tied-in to prevent breakages and preserve the symmetry of the plants. During any showery weather after this time transplanting evergreen trees and shrubs that have completed their growth may be proceeded with, the late summer and early autumn months being favourable for the performance of such operations.

PLANT HOUSES.

Orchids.—The temperature may still range from 75° to 80° by day in the East India house and 65° at night, which should be continued until the end of the month. Maintain a genial atmosphere, and give every encouragement to Aerides, Phalænopsis, Saccolabiums, and Vandas, damping the blocks, baskets, and pots in the morning, and in the afternoon of fine days a syringing will be of great benefit, care being taken not to have the sphagnum or peat in a soddened state. Shade as little as possible, only employing it to prevent the sun scorching the foliage. Dispense with shading on the Cattleya house; clean the glass so as to admit all the light possible, affording all pseudo-bulbous plants that have completed their growth an increased amount of air. *Laelia purpurata* and *Cattleya Mossiæ* may now be repotted and placed in the warmest part of the house to enable them to complete their growth as soon as possible. Encourage *Calanthe vestita* var., *C. Veitchi*, and *C. Turneri* by the application of weak liquid manure to make large pseudo-bulbs, as the stronger those are the finer will be the flower spikes. Any *Odontoglossums* that started late into growth and require larger pots may be given them safely, but the roots must be disturbed as little as possible. Endeavour by exposing the plants to as much sun as they will bear to have the pseudo-bulbs and leaves well matured before the dull days set in.

Stove.—*Ixoras* that have been employed through the summer for conservatory decoration must now be placed in the warmest part of the stove, as they have had sufficient rest in the cooler quarters. Cut away all the old flowers, and if infested with scale or mealy bug wash with an insecticide, as the plants, from the firm state of the wood and leaves, will bear it stronger than at any other season.

Bougainvilleas and *Clerodendrons* and other plants that have for a time been in cooler houses should also be removed to a warmer position, but should not have so much as to start them into growth, not withholding water to the extent of causing the premature shedding of the foliage, but by a drier atmosphere and lessened supplies of water gradually hardening the growth.

THE BEE-KEEPER.

THE LANCASHIRE AND CHESHIRE BEE-KEEPERS' EXHIBITION.

THE members of this Association have cause to congratulate themselves on the success of their first Exhibition, which took place on Wednesday, Thursday, and Friday last, at Moor Park, Preston, in connection with the Show of the Preston Floral and Horticultural Society. No doubt much of the success as regards the numbers attending was due to the fact of it being the week of the "Preston Guild Merchant," a time-honoured institution many centuries old, and which is celebrated only once in twenty years.

It is well the festival recurs so seldom, as it would be impossible for the inhabitants of any town in England to endure the strain of excitement consequent on the holding of a week's high carnival such as this, when all business is entirely suspended, and everyone is on pleasure bent. As a result of the above large numbers attended the bee Show. The manipulating tent was well patronised, and the whole affair was deservedly successful. It will surprise us if the Lancashire and Cheshire Association does not receive a large accession of members, which already number over one hundred, though it has only been in existence some three months.

It was thought that Lancashire and Cheshire were counties in which success in bee culture could not be hoped for; but the result proved the contrary, for the classes for members only, though small, contained exhibits which bore favourable comparison with those open to the United Kingdom. The unfavourable season militated greatly against the chance of a large entry, and at one time it seemed as if the Exhibition would turn out a comparative failure; but a circular was sent out urgently asking the bee-keepers of the various county associations to come to the rescue, and an excellent display, almost the finest yet held this year, was the result.

The Committee cannot but thank those who spared neither time, trouble, nor expense in aiding them to give an impetus to bee-keeping in this part of the country. The block in the traffic arrangements on the various railways, consequent on the enormous number of people who flocked to Preston from all parts, affected the exhibits in a most unfortunate way, many of the supers having their combs fractured, and the jars broken and emptied of their contents. An examination of the injured packages showed plainly that the art of packing honey is still unknown to many; and if committees would obtain a supply of the best material known for breaking the effect of a sudden jar—i.e., paper shavings, and supply exhibitors with them at cost price, with a printed slip containing a few instructions, we believe that fewer complaints of breakages will be heard.

Much has been said as to sending out sections in crates glazed at the sides showing the fragile nature of its contents, so as to cause railway people to use care in handling. Several crates were so sent, and if the owners could have seen them and compared them with exactly similar ones which had been properly packed in boxes, and which were turned out clean, bright, and uninjured, while the first-named were soiled, the glass broken, combs down, the crates covered with various labels and directions, and altogether presenting a most uninviting appearance, no further argument would be needed to convince exhibitors of the folly of putting their trust in railway porters.

Much credit is due to those who had the management of the staging department in promptly tying-up and protecting leaking exhibits, though we fear the weight will have considerably decreased when returned to the owner from the number of bees which, attracted by the odour of the honey, visited the tent and helped themselves to an unexpected feast. No one was stung, the bees being too intent on their own business to mind anything else, while the presence of the busy little creatures amused the visitors and alarmed no one. A very novel feature was introduced on the second day of the Show—an employé of Messrs. Neighbour and another of Mr. Blow's each performed the Wildman feat of going about the grounds with a swarm of bees on his hat, to the astonishment of all who saw it. On Friday the presentation of prizes by the Countess of Lathom took place, when a large and distinguished company were present, including the Guild Mayor (E. Birley, Esq.), the Earl and Countess of Lathom, the Earl and Countess of Sefton, Colonel and Lady Augusta Stanley, the Lady Mayoress (Mrs. Birley), the Right Hon. C. Raikes, M.P., &c. After the presentation of prizes the whole party proceeded to the tent of the Association, where they witnessed with great interest various manipulations with bees, and afterwards went through the large marquee where the exhibits were displayed, expressing the pleasure they felt at seeing so fine a collection. Mr. Jackson, the Hon. Sec., conducted

the visitors through the Show, explaining the various hives, &c.; and Mr. W. Broughton Carr had the honour of presenting, on behalf of the Association, samples of prize honey to the Countess of Lathom, Lady Augusta Stanley, and the Mayoress (Mrs. Birley).

The exhibits in the honey classes for members only were small in number, but the quality was so good that it compensated for quantity. The first-prize extracted honey was very fine, and in the opinion of several apiarians who have visited most of the shows the best which has been exhibited this year. The first prize for a collection from one apiary had some fair supers; but the best one, a square Lee's super, was damaged in transit, and much deteriorated in consequence. The whole exhibit weighed a little over 1 cwt.

The first-prize sections were neatly put up in a reticule sort of glazed case, with leather handles to carry by. No doubt many will admire this style of section case, particularly if it induces the purchaser to keep the case and send it each year to be refilled. The similar collection in the open class was a very fine display, and consisted of honey in sections entirely, while the neat way in which the wood was concealed by a paper covering, and the usually imperfect cells round the edge of the comb hidden by a border of lace paper, was a lesson which will not be lost by those who came to see and learn. Class 11 was very poorly represented, the one which took first being a square Lee's super containing straight combs, but rather dark Heather honey. Class 12, for the best glass super, is one we should like to see done away with. It looks very nice, no doubt, to see a huge bellglass filled with good white comb, but those who have had much to do with such things look with a certain amount of horror on the task of cutting up such a super, especially as was the case with one of the three exhibits. There was a counterpart of the abominable "stick through the centre of a skep" in the shape of a lath, or something carefully worked by the bees into a solid mass, right through. If exhibitors will have circular glass supers, why not adopt the plan of a circle or rim of glass—which can be had for a few pence—and have a top and bottom board of wood? This sort of super when full can be turned bottom upwards, the board and glass removed, and the combs cut away neatly as required. Messrs. Abbott Brothers' collection was not quite so large as either of the others, but every article displayed was of a good and useful kind. The Irish hive exhibited by this firm is wonderfully cheap, and will no doubt be largely used; and their cheap extractor at 25s., which won second prize in its class, while simple in principle, is one that will do its work well, and we think will become popular.

Class 5, for the best hive for observation purposes. There were four exhibits. Mr. T. B. Blow took first with a hive which combined the good qualities of the second and third-prize hives. H. Gibbons took second, Messrs. Neighbour & Sons third. The mechanism of the last hive was ingenious, but not so safe in working as Mr. Gibbons', while it had the advantage of a revolving platform similar to Mr. Blow's hive. In Class 7, for the best and cheapest hive, the price not to exceed 12s. 6d., some excellent hives were shown, and the wonder was how several of them could possibly be made for the money; but in the case of two exhibits much feeling was displayed, and the Judges unanimously excluded them from competition, as being both unfairly described in the catalogue and calculated to mislead. We quite agree with the Judges in their effort to put a stop to this sort of thing. Here was a hive which upon being looked at and examined would be set down by most people as worth £1 to £1 5s. It had a strong outside case, well painted, with hinged roof, and a large let-down shutter at back, set on legs, with floor-board, porch, &c., and on opening it contained two large stock boxes made of mahogany or teak, with windows at back, ten frames in each, had crown boards, comb foundation, supers, quilts, &c., and the whole of this was priced in the catalogue 8s. On inspecting the roof a written statement was found giving some particulars, by which it was seen that the outer case and roof were made from a bacon box, value 1s.; the two stock boxes from a tea chest, value 6d.; the twenty frames, 1s. 8d.; legs, hinges, &c., 10d.; and labour and profit, 4s. Underneath this was a statement to the effect that paint, crown boards, comb foundation, supers, &c., were extra, but how much was not stated. This, we maintain, is not legitimate hive-making, and certainly not fair to regular manufacturers, whose business is not to buy up bacon boxes and tea chests for working up into bee hives; and we heard the opinion expressed by many that exhibits of that kind retard rather than promote bee culture, unless a special class was devoted to home-made hives and such like. In this case much merit would be awarded to the makers.

Class 14, for the best extracted honey, was a very singular collection, consisting of over twenty entries, and the honey varying in colour from a white crystallised lot somewhat resembling furniture paste to almost black honey gathered occasionally, we think, from Oak trees when honeydew is plentiful.

The three collections of hives and apiarian appliances sent by Messrs. Neighbour, Mr. Blow, and Messrs. Abbott Bros., reflected great credit on those gentlemen. An examination of the various articles displayed made it clear that each manufacturer had specialities of his own; Messrs. Neighbours' containing workmanship of a very high order, almost too good for the purpose of bee-keeping. Mr. Blow, on the other hand, while not forgetting to stage some very costly articles, had a great number of a cheap and useful description. His extractor, which won first prize, was a very good one, and worked admirably. He also showed a most useful little feeder, though the

principle was not quite original, being an improvement on the well-known one invented by Mr. Abbott. He had an excellent case of apiarian cutlery, and also a sample of the new Dunham Comb Foundation, said to be better than any other, but having had no experience of it we cannot give an opinion.—WM. BROUGHTON CARR.

The following is the prize list:—

Class 1.—For the best exhibition of honey (super honey in preference) from one apiary. First, W. B. Carr; second, not awarded.

Class 2.—For the best super of honey (not being a sectional super). The super to be of wood, glass, straw, or of wood in combination with glass or straw. First W. B. Carr; second and third not awarded.

Class 3.—For the best exhibition of 1-lb. or 2-lb. sections of comb honey, the total weight not to be less than 12 lbs., nor more than 30 lbs. First, J. H. Buekley; second, W. Watkin; third, W. B. Carr.

Class 4.—For the best exhibition of 12 lbs. to 30 lbs. of run or extracted honey in 1-lb. or 2-lb. glass jars. First, W. B. Carr; second, G. Stocks; third, P. Wood.

Class 5.—For the best hive for observation purposes, all combs to be visible on both sides, to be exhibited stocked with bees and their queen. First, T. B. Blow; second, H. Gibbons; third, G. Neighbour & Sons.

Class 6.—For the best moveable-comb hive, complete, for summer use, with facilities for harvesting honey and with arrangements for wintering. First, T. B. Blow; second, Abbott Bros.; third, G. Neighbour & Sons.

Class 7.—For the best and cheapest live on the moveable-comb principle, for cottagers' use, with arrangements for summer and winter. Price not to exceed 12s. 6d. First, T. B. Blow; second, C. Foxon; third, Abbott Bros.

Class 8.—For the best stock of Ligurian Bees. 1, G. Neighbour & Sons; second, T. B. Blow.

Class 9.—For the best stock of English bees. First, T. B. Blow; second, G. Neighbour & Sons.

Class 10.—For the best exhibition of super honey from one apiary. First, W. Raitt; second, J. W. Measnes; third, J. Walton.

Class 11.—For the best super of honey, not being sectional supers. The super to be of wood, straw, or of wood in combination with glass or straw. First, T. Christie.

Class 12.—For the best glass super of honey. First, T. Sells; second, Mrs. J. Howard; third, J. Lighton.

Class 13.—For the best rack or grate of 1-lb. or 2-lb. sections of comb honey, the total weight not to be less than 20 lbs., nor more than 30 lbs. First, W. Raitt; second, J. Rogerson; third, J. Walton.

Class 14.—For the best exhibition of 12 lbs. to 30 lbs. of run or extracted honey in 1-lb. or 2-lb. glass jars. First, P. Wood; second and third, W. Martin.

Class 15.—For the best and largest collection of hives and bee furniture, most applicable to modern bee-keeping. First, G. Neighbour & Sons; second, T. B. Blow; third, Abbott Bros.

Class 16.—For the best honey extractor. First, T. B. Blow; second, Abbott Bros.; third, S. Walton.

Class 17.—For the best sample of comb foundation (a) for worker-cells, (b) for supers, not less than 2 lbs. of each. First, T. B. Blow; equal first, W. Raitt; second, Abbott Bros.

Class 19.—For the competitor who shall in the neatest, quickest, and most complete manner, drive out the bees from a straw skep, capture and exhibit the queen. First, J. Walton; second, G. Stocks; third, E. Devenport.

Special Class.—Highly commended, Rev. W. E. Burkitt (crate of sections with cover for use on straw skeps); T. B. Blow (method of sniping a straw skep); commended, F. Lyon (self-adjusting and removeable frame ends).

Special local prize given by the Guild Mayor.—First, J. Forshaw.

The following gentlemen officiated as Judges:—*Honey Classes*: C. N. Abbott, G. Neighbour, and T. B. Blow. *Hives, Bees, and Apiarian Appliances*: W. Broughton Carr, W. Raitt, and C. Woodhead.

BEE-KEEPING FOR BEGINNERS.—No. 5.

SWARMING VERSUS NON-SWARMING.

IN bee-keeping as in other things first principles should be well understood. Though the subject of swarming has been often discussed in the pages of this Journal we have resolved to notice it once more for the benefit of beginners. That it is natural for honey bees to swarm all intelligent and experienced apiarians freely admit, and the bees prepare for swarming months before it takes place. The diligent care and labour which bees undertake in preparing for the important event are interesting, and which, like other secrets of Nature, appear more surprising as they are better understood.

My aim in these notes is simply to express my opinions on the advantages of managing bees on the swarming principle, and when and where it should be interfered with, and the non-swarming system resorted to or followed. In investigations of this subject many points have to be noticed—viz., large and small hives, good and bad seasons, early and late localities, spring and autumn flowers. On the swarming system of management large strong hives have great advantages in good seasons and good localities. In such seasons and localities bees, under fair management, swarm early, and the swarms do better and rise to greater weights than hives managed on the non-swarming principle. It may be difficult to explain how it comes to pass that early swarms in good seasons fill their hives with combs and often surpass hives of bees that never swarm at all. Very few bee-keepers will question the fact here stated, even if the reasons given in explanation are unsatisfactory.

Swarms are beginning life on their own account, and this seems to stimulate the bees to make greater exertions. How fast they work, secrete wax, and build combs! A single swarm has been known to fill its hive with combs and weigh 45 lbs. in seven days. In such cases both season and locality were favourable; but all

through life we have been struck with the rapid progress of swarm hives in good seasons. For two or three days after being hived swarms are placed at a disadvantage by having to lay the foundations or beginnings of their combs at mere points, so small that few workers or builders can get at them to help. Hence the desirability of using guide combs—say a few pieces of artificial comb foundation to commence with and build on. In the absence of a few guide combs a pound or two of sugar syrup given to swarms for one or two nights after being hived helps them very much. It is never wasted, and for which there is an ample return and great progress made. Notice how fast they work after the first few days; trip up some of the field workers as they hasten to enter their hives, and flakes of wax will be seen coming out of the rings of their abdomens. Combs are now rapidly built, and as rapidly filled with brood; and there can be no question that the cells of young combs give more space for the full development of brood, and the combs themselves, being less cloyed and cumbered with pollen than older ones, yield greater hatches of brood. By the records of experienced men who manage bees on the swarming principle which have appeared in the *Journal of Horticulture* during the last few years it has been seen that some swarms in good seasons have risen in weight to 140 lbs. and 160 lbs., and if I remember correctly Mr. George Campbell in Aberdeenshire had one that rose to 173 lbs. It is seldom that unswarmed hives, however, managed to reach such weights. On the swarming principle the old stocks and second swarms are not idle in good seasons, and they claim a fair share of notice in the account. In good seasons and good localities for honey the swarming system of management is, in my opinion the best, being, as it is, the most natural, safe, healthy, and profitable.

All this cannot be said in bad seasons and bad localities. But my experience leads me to think that taking a run of years—say five or ten years, good and bad together, the swarming system of management is most desirable and profitable. On the non-swarming principle there is the fear of losing swarms, and the fact that many are lost. Then there is the danger of foul brood and other diseases; accumulations of pollen choking the cells and causing slow progress. In bad seasons for honey the non-swarming system has advantages in this respect, that the fewer hives the bee-keeper has in such seasons the less feeding is necessary, and no honey is expended in comb-building. There are no empty hives to be filled, and therefore all the honey gathered is used in feeding the brood and bees, and in storing for winter food. In ordinary seasons such as we often have in Great Britain one cannot speak with any degree of certainty as to which system is the better of the two. Much depends on the objects of the bee-master and how he manages his apiary. If he has well learnt the art of supering, and aims at a return from honeycomb, the non-swarming system will serve his purpose best in such ordinary seasons. This opinion is held by a great number of intelligent and advanced bee-keepers. Much has been said in support of it, and very little can be said against it. The danger of losing swarms is great, for in such seasons hives are generally full of bees whose inclination for swarming is difficult to remove or control. The loss of a swarm in such a case and season is ruinous to the hive and disappointing to the bee-master. Though we have not a word to offer in opposition to the arguments of those who practise the non-swarming system in ordinary seasons, we prefer and follow the swarming system of management for several reasons. 1st, By swarming we have no anxiety about losing swarms. 2nd, By feeding swarms for a few days after they are hived they soon become equal to hives that do not swarm at all for work of various kind. We thus increase our number of hives, and derive more profit from the sale of some of them than can be done otherwise. But this cannot be done everywhere.

In ordinary seasons in Great Britain it is understood that we have days and weeks of wet weather. Well, in such weather we do not hesitate to swarm bees that are ready, for by so doing the swarms are taken from the old hives where they waste their time and consume honey, and made to work and build combs in new hives. Both honey and time are thus saved, and combs are built of syrup—a very cheap material—and prepared for the reception of honey when the weather becomes favourable. It is a nice art and a stroke of good policy to get bees to build combs in unfavourable weather from a cheap material and filled with rich honey afterwards. The time is coming when bee-keepers will know better than to allow their bees to remain idle during the summer months whatever be the state of the weather. Idleness in a bee hive should not be tolerated.—A. PETTIGREW.

(To be continued.)

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.—The seventh annual Exhibition of this Society will be held in the Arboretum, Lincoln, on

Thursday and Friday, September 21st and 22nd, when numerous prizes will be offered for bees, honey, hives, wax, extractors, and various apiarian appliances. A silver cup will also be offered for the best and largest exhibit of honey taken without destroying the bees, the cup to become the property of the member who wins it three times. The Exhibition is under the patronage of the Mayor of Lincoln, and the Honorary Secretary is Mr. R. R. Godfrey of Grantham, who has rendered great services to bee culture by his energetic and well-directed labours.

SUSSEX BEE-KEEPERS' ASSOCIATION.

THE first annual Show of this Association was held at Horsham on Thursday, September 7th, in connection with the Horsham Horticultural Show. Although the Sussex Bee-keepers' Association has only been established a few months it has already created a considerable interest in bee-keeping in the county, as the bee tent which it was resolved to purchase at the first meeting in April last has been sent to the principal flower shows in the county. At Brighton the Association held a show in connection with the Royal Counties' Agricultural Show, but unfortunately, the weather being bad, the attendance of visitors was small. The Show held on Thursday last must be reckoned as a decided success. The liberal prize list brought together such a competition in hives and appliances as astonished everyone, although there was very little honey shown, and most of that was Heather honey. It was evident that the honey season in Sussex had been a bad one, and the usual display of beautiful sections from the well-known Sussex apiaries were absent. What was exhibited, however, was good, and that for sale found ready purchasers at good prices.

The tent in which the Exhibition took place was 70 feet long and 30 feet wide, and as all the tables round the tent and up the centre were well filled the Show was an imposing one.

The principal prizetakers in the hive classes were Messrs. Abbott, Baldwin, Taylor, and Worldridge, the latter also taking first prize for the largest and best collection of hives and appliances most applicable to bee-keeping. The principal winners in the honey classes were Messrs. T. W. Cowan, M. Freeman, T. Marsh, R. Edwards, and G. Green. The competition in the honey classes was confined to residents in the county of Sussex only.

The manipulating tent was as usual a great centre of attraction, and great many persons witnessed the ease with which Mr. J. Baldwin handled the bees. The Judges were Captain Campbell, Messrs. J. Garratt, and F. Lemare, and their awards were generally approved.

Amongst the articles not for competition were some beautiful sections and bottles of extracted honey exhibited by Mr. J. Garratt from St. Mary Cray, Kent.

TRADE CATALOGUES RECEIVED.

[Geo. Cooling & Son, Bath.—*Catalogue of Bulbs (Illustrated)*.

Wilhelm Büchner, Erfurt, Germany.—*Trade Catalogue of Garden and Farm Seeds*.

Bruant, Boulevard Saint Cyprien, Poitiers (Vienne, France).—*List of Plants and Fruit Trees*.

E. G. Henderson & Son, Maida Vale, London, W.—*Catalogue of Dutch and Cape Bulbs, &c.*

James Yates, Underbank, Stockport.—*Catalogue of Continental Bulbous Plants*.

Barr & Son, King Street, Covent Garden.—*Catalogue of Bulbs and Plants*.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Catalogue of Roses (H. K.).—The National Rose Society's catalogue can be obtained post free for six stamps from either of the Hon. Secretaries—Rev. H. Honywood D'Ombra, Ashford, Kent, or Edward Mawley, Esq., Lucknow House, Addiscombe, Croydon.

Urine for Vine Border (J. M. B.).—Both kinds are good (that of which you have abundance at your command perhaps the better) when the Vines need it, not otherwise. The quantity to be given and the strength depends wholly

on their condition. One part to six of water will be quite strong enough for summer use, but in the resting period it may be given as strong again, but only, we repeat, if the Vines need it; if otherwise, the application would do harm instead of good. It is not possible for anyone to give precise instructions on this matter without a knowledge of the condition of the Vines and the border, and this is not easily conveyed except by one who has practised in Vine culture and is a skilled cultivator. You will find useful information on the application of sewage in our "Manures for the Many." If you do not possess this manual you can have it in return for 4½d. in stamps sent to the publisher.

Fertilising Moss (Anxious).—Some surprising results have been reported concerning the effects of the substance you mention, but we have not had an opportunity of testing its efficacy as a substitute for soil.

Polyanthus Narcissuses (J. E. O.).—The plants in the borders will require no further care, but will grow and flower annually. The bulbs in pots in all probability had better be planted out, as unless the plants had good attention after flowering, the foliage having been kept fresh and healthy as long as possible, they will not give a satisfactory return if forced another season. For this purpose you had better obtain fresh bulbs and pot them at once in a mixture of loam, leaf soil, decayed manure, and sand, burying the pots 6 inches deep in cocoa-nut fibre, ashes, or other light material until the plants have grown an inch long; then afford them a light position in a cool house. Hollies may be pruned now—at once.

Window Fern Case (M. E. W.).—As the case is to be outside all the year you will not be able to employ any Palms, but any of the following hardy Ferns would be suitable, as they are of moderate growth:—*Adiantum Capillus-Veneris*, *Asplenium Adiantum nigrum*, *Asplenium marinum*, *Asplenium Rutamuraria*, and *Ceterach officinarum*. For climbers the small green and variegated Ivies might be employed with *Ficus repens*. Some of the deciduous Ferns, such as the *Cystopteris*, might be grown in pots and placed in the case in summer, and they would improve its appearance considerably.

Lifting Dahlia Tubers (H. I. J.).—When the leaves and growths are blackened by frost the stems should be cut off and the tubers lifted, exposing them for a day or two to partially dry, and then store them in a dry position quite secure from frost, either in soil, sand, or any similar material. Keep them dry until it is necessary to start them early in spring, when if cuttings are required the tubers should be placed in a warm frame and supplied with water. You do not state definitely what kind of book you desire to obtain. Is it a work on British plants, or one devoted to botany generally that you purpose studying?

Cigarettes for Fumigating (H. Watson).—Perhaps the "paragraph" which you have read and forgotten was written by Mr. Keane. "Provide a strong solution of nitre in water, in which soak some sheets of strong brown paper, and afterwards dry it slowly and cut it into lengths of convenient size, the largest 18 inches by 12 inches; then get some strong tobacco and strew it thinly over the paper, and with a coarse pepper box dredge in a good coat of common Cayenne pepper, wrap the whole up loosely like a cigarette, paste the end over, and when dry it is fit for use. Two or three of these suspended by a wire under a greenhouse stage, and lighted at each end, will quickly settle the accounts of the green fly and thrips, and that with comparatively little trouble; indeed, if a quantity of these cigarettes be kept ready made a few plants may be put into a pit or small room and be cleaned, at least have their insect pests destroyed, in a very short time. By using Cayenne much less tobacco is required, and the effect of the two combined is most deadly; for, as the cigarettes will burn for a considerable time, say an hour or more, it is impossible for insects to live in an atmosphere so thoroughly suffocating."

Wintering Potatoes (W. W. X.).—We prefer the Potatoes placed in thin heaps on the level of the ground rather than in excavations or pits below it, but by the former plan greater care is requisite in protecting the tubers from frost. The site should be dry and firm, from 3 to 4 feet wide, the tubers being neatly piled so as to form a sharp ridge or apex. They should be perfectly dry when placed in the heap, not one diseased tuber being admitted. A covering at least 6 inches in thickness of very dry and straight straw should next be given, then with the spade commence digging a foot from the straw all round, and continue that thickness of soil over the entire heap. For ventilation 3-inch drain pipes may be placed on end at intervals of 3 or 4 feet, their ends being just, and only just, above the soil at the apex of the ridge. These ventilators must be securely closed during wet and frosty weather. With thin heaps of perfectly dry sound tubers carefully covered as directed we do not find ventilators necessary in wintering Potatoes. When several tons of Potatoes are stored in very large heaps drain pipes are often conducted quite through the centres of the heaps and out of the tops, and if the tubers are damp when stored the practice is a good one. Such ventilators, however, must have attention, or they do as much harm as good.

Charred Garden Refuse (E. Elmdon).—It is valuable for gardens, and may be prepared as described in our manual on manures, from which we cite the following:—"To char turfy soil the best method is to cut it into sods of about a spade's width and 2 or 3 inches thick when the soil is not over-saturated with moisture. Burning any kind of material, and allowing it to be consumed, producing nothing but smoke and ashes, is a real waste of valuable substance which could be turned to beneficial account for the culture of the soil. Commence by placing a small quantity of combustible material, such as dry weeds, hedge-trimmings, furze, heath, shavings, brushwood or bushes, or any kind of dry vegetable refuse the place produces near at hand; then commence packing the sods, no matter how or what thickness, as any thickness may be charred by placing amongst them as the heap or kiln is proceeded with, some one of the before-mentioned materials, or old tan or sawdust, just to keep the materials ignited. It is no matter how large or small the kiln may be formed, for this may be regulated by the convenience of the material at hand and the quantity of charred materials required; only, when the kiln is formed it should be slightly covered or cased with flue earth to prevent the fire from flaring and to maintain a steady smouldering, charring, or roasting. Much smoke will escape for a time, and when the smoke begins to subside it is a sign that the materials are charred enough. The fire should then be smothered by casing up the outside of the kiln quite close with earth. Although turf sods only are mentioned, the same process of charring may be carried out with weeds and other garden refuse if the outside of the heap is covered over closely with sods of earth, so as to exclude the air sufficiently to ensure the burning to be very slow and smouldering."

Planting Anemones (N. A. L.).—We cannot do better than repeat what we have published before on this matter. "The Anemone requires a pure loamy soil, well mixed with sand, such as sometimes is found on the sides of rivers naturally mixed with the sand. Choose a situation that is open, but sheltered from violent winds or strong twisting currents of air; then dig out the soil a foot or more, according as the situation is high or low. If high it may be dug

out 3 or 4 inches deeper, but if low and wet a foot will be sufficient. Mix the soil with sand if it requires it, and fill in the bed again to within 6 inches of the level of the surface; then level it, and lay on it a thin covering of thoroughly decomposed hotbed manure or cow dung; the latter is to be preferred. Mix this well with the soil below. Upon this mixed enriched soil place as much of the pure sandy loam as will raise the bed an inch or two above the walk. No dung must be among this top stratum of soil, because dung causes the peculiar disease called 'mould' to attack the bulbs that come in contact with it. The best season for planting is from about the middle of October to the first week in November; the bulbs then form roots before severe frosts set in. Should the planting be unavoidably delayed the bed must then be covered with fern or straw. Choose a time when the soil is moderately dry and the day fine. Draw drills across the bed 2 inches deep and 5 or 6 inches apart, and plant the tubers 5 inches apart in the rows. For choice varieties a thin layer of sand scattered under and around each tuber will be useful. As soon as the bed is planted cover the tubers with sandy loam from a basket or wheelbarrow. Take care that the tubers are placed the right side up by observing the side that has the old small fibres on it; that side place next to the bottom of the drill. When all are planted and covered up the right depth (2 inches) then level the surface with a garden rake."

The Royal George Peach (Lorrimore).—The following account of the history of this Peach is given in the "Fruit Manual":—"The first mention we have of the Royal George is by Switzer, who says it was raised by his 'ingenious and laborious friend, Mr. Oram of Brompton Lane.' He describes it as 'fattish and pretty large, with a dark red coat on the sunny side, the flower is one of the large whitish kind.' 'Earlier than the Anne, of great esteem, and inferior to none that comes after it.' At the time Switzer wrote this account of it (1724), George I. was on the throne, and no doubt the Peach was named in honour of him. This must therefore have been the original Royal George. But that which is now cultivated under this name is a very different variety with small flowers, which seems to have superseded the original one. This is not surprising, when we find from his account that 'such is its aversion to nitre with stoeks in general, and so sad a destruction does it make in the nursery stocks, that I find all nurserymen are weary of it.' There is every probability that the high reputation the Royal George of Oram attained, and the difficulty of its propagation, induced other cultivators to substitute a variety which could be more easily multiplied, and this they found in Millet's Mignonne, which was also new at the same time, and was introduced by Millet, a market gardener at North End, Fulham, and it has continued to represent the Royal George ever since. So late as the beginning of the present century Forsyth describes the flowers of Royal George as large. I quite believe that the original Royal George of Oram was a seedling from Grosse Mignonne, and little different from that variety; and not improbably it may have been what Grimwood afterwards grew as Grimwood's Royal George, which is a form of Grosse Mignonne. This being so, the difficulty of propagation is easily explained, for the Grosse Mignonne requires to be budded on the Pear Plum."

Plants in Rooms (Perplexed).—No doubt, as you say, doctors differ on the subject as to whether plants are beneficial or injurious in rooms. The question is one of constitution and circumstances. Some remarks by the late Mr. Fish on this subject are worthy of perusal:—"Are plants in rooms promotive of health and cheerfulness? In the case of all living-rooms I answer in the affirmative. Delicate people complain of headaches and sickness from their presence, and will, therefore, have them excluded, and rightly too. Plants with powerful odours will sometimes produce that effect. I have known ladies that could not go near a Jasmine; others that hated Musk; some that would faint at the proximity of a Heliotrope, and others that only approved of Mignonette when not nearer than a furlong. All of us have something peculiar in our likes and dislikes. It is rather ill-natured to consider such peculiarities as mere fid-fad imaginaries. Common prudence would say, 'Keep at a distance from whatever harms you.' In bedrooms that are shut close at night I would advise dispensing with flowers having powerful odours, even though agreeable to the olfactory nerves of the owner. If he prefers retaining them it would be advisable to place them nearer the floor than the couch on which he reposes. But why not have air in the sleeping-room at night, instead of shutting it up close, when the weather is at all favourable, and thus serve the interests of the occupant and those of the plants at one and the same time? The idea of the unhealthiness of plants in living and sleeping-rooms has been suggested by our chemical friends demonstrating the influence of vegetation on the atmosphere, and the reciprocal action ever going on between the vegetable and the animal world. They tell us truly that animals are continually taken oxygen gas from the atmosphere, and throwing, by exhaling, carbonic acid gas into it, and that from this and other causes, but for living vegetation, the air would become impure and unfit for breathing. The solid part of plants being chiefly carbon—of which charcoal may stand as a familiar type—and every green part of a plant having the power to absorb this carbonic acid gas in the atmosphere during light, its quantity is thus lessened, while the action of the sunbeam enables the plant to decompose the carbonic acid thus received, to retain, add, or assimilate the solid matter, the carbon to itself, and to set the other constituent (oxygen) free for the benefit of the animal world. Thus it would seem that the nearer we get to healthy vegetation the more likely we shall be to get the benefit of this fresh-forming oxygen; but, as if to damp our enthusiasm, we are presented with a lesser and a greater drawback to our satisfaction. This lesser is, that all unhealthy parts of a plant, yellow leaves, &c., and, what is more painful still, all *flowers* in proportion as their colour recedes from the green, vitiate the atmosphere rather than improve it even during the day. The second drawback is, that at night, or in darkness or much shade, even healthy plants exhale carbonic acid gas and inhale oxygen, and just in proportion to their size and powers deteriorate the atmosphere like ourselves, and therefore become, especially after twilight, very undesirable neighbours in our dwelling and sleeping-rooms. To this heavy accusation I reply that, in general, the size of flowers, in proportion to green leaves in plants grown in rooms, is so small that during the day the advantage greatly outweighs the disadvantage; and though undoubtedly plants do give off carbonic acid gas at night, yet at that time the rooms are generally at their coolest, and as this gas is something like three to two heavier than common air, it will, in such circumstances, fall to the floor, and only be mingled with the general atmosphere by the heat and the sunbeam of the following day. Unless the plants were extra numerous the absorption of oxygen would not much influence the air of the apartment. All or almost all injury might be avoided by seeing that the plants were lower than the seat or couch of the owner. I believe this the more because *dew*, the condensed moisture in the air near the ground, holds much more of this gas in solution in general than common water does. On the whole, then, unless in the case of delicate invalids, or of plants with very large flowers or having a powerful odour, I believe that healthy plants in rooms are decidedly beneficial, and promotive alike of cheerfulness and health, and that this is especially the case in large cities and towns."

Names of Plants (A. B.).—The large flower is *Godetia rubicunda*, or one

of its varieties, which are numerous; an effective hardy annual. The spray is *Linaria Cymbalaria*. (*M. D.*).—1, *Sophronitis grandiflora*; 2, *Linaria vulgaris*; 3, *Tradescantia discolor*; 4, *Passiflora caerulea*; 5, *Jasminum gracile*; 6, *Chrysanthemum segetum*. (*Celt.*).—1, *Ophiopogon spicatum* var.; 2, *Dietyogramma japonica*; 3, *Doodia caudata*. (*Fisher*).—*Nigella damascena*, popularly called Love in a Mist, sometimes even Devil in a Bush, a pretty annual for beds and borders. (*Rosa*).—We cannot undertake to name a plant from a single leaf. (*J. G.*).—The fungus is a small specimen of *Lycoperdon*, but was too immature to enable us to identify it. The Grapes were quite unrecognisable, having been much crushed in transit.

Driving Bees (*Old Subscriber*).—With a view to obtain the honey from your two old stocks drive the bees into empty hives. The work of driving is simple and easily done. First blow some smoke from fustian or calico rags amongst the bees; turn up the hives and place them on their crowns upside down; put empty hives over them; roll a table cover or piece of cloth of any kind round the junction of the hives; and drive the bees up by drumming on the bottom ones for fifteen or twenty minutes. This drumming shakes and disturbs the bees below, and causes them to run up for safety. If the work is well done almost all the bees will be found in the empty hives. If a few stragglers remain in the old hives shake them out by a thump or two on the ground. If your servants cannot do this then destroy the stragglers with sulphur. Remove the hives to some house, and there take the honey before it has time to cool. At once unite the two swarms in an empty hive, and give the bees 2 lbs. of sugar made into syrup every night for twelve days, and thus you will have a stock excellent in every respect. If you follow this advice you will be able to convince the bee-keepers around you that the brimstone pit is a cruel and wasteful expedient, and that bees saved from it can be fed into stocks of great value.

COVENT GARDEN MARKET.—SEPTEMBER 13TH.

A QUIET business doing, prices generally easier. Kent Cobs in good supply, but cleared at lower rates.

FRUIT.							
	s. d.	s. d.		s. d.	s. d.		s. d.
Apples.....	½ sieve	2 0 to 7 0	Lemons.....	case	20 0 to 30 0		
Apricots.....	doz.	1 0 1 6	Melons.....	each	2 0 3 0		
Cherries.....	½ sieve	0 0 0 0	Nectarines....	dozen	2 0 10 0		
Chestnuts.....	bushel	0 0 0 0	Oranges.....	100	6 0 10 0		
Currents, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	2 0 10 0		
" Red.....	½ sieve	0 0 0 0	Pears, kitchen..	dozen	0 0 0 0		
Figs.....	dozen	0 6 1 0	dessert.....	dozen	1 0 2 0		
Filberts.....	lb.	0 6 0 0	Pine Apples, English	lb.	3 0 4 0		
Cobs.....	100 lb.	35 0 40 0	Raspberries....	lb.	0 0 0 0		
Gooseberries....	½ sieve	0 0 0 0	Strawberries...	lb.	0 0 0 0		
Grapes.....	lb.	1 0 3 0					

VEGETABLES.							
	s. d.	s. d.		s. d.	s. d.		s. d.
Artichokes.....	dozen	2 0 to 4 0	Lettuces.....	score	1 0 to 1 6		
Asparagus.....	bundle	0 0 0 0	Mushrooms....	punnet	1 0 1 6		
Beans, Kidney....	100	1 0 0 0	Mustard & Cress	punnet	0 2 0 3		
Beet, Red.....	dozen	1 0 2 0	Onions.....	beh.	0 6 0 0		
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0		
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0		
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 10 0 0		
Capsicums.....	100	1 6 2 0	Potatoes.....	cwt.	6 0 7 0		
Carrots.....	bunch	0 4 0 6	Kidney.....	cwt.	6 0 8 0		
Cauliflowers.....	dozen	2 0 3 0	Radishes....	doz. bunches	1 0 0 6		
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6		
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0		
Cucumbers.....	each	0 4 0 6	Scorzoner.....	bundle	1 6 0 0		
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0		
Fennel.....	bunch	0 3 0 0	Shallots.....	lb.	0 3 0 4		
Garlic.....	lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0		
Herbs.....	bunch	0 2 0 0	Tomatoes.....	lb.	0 2 0 6		
Leeks.....	bunch	0 3 0 4	Turnips.....	bunch	0 6 0 0		



POULTRY AND PIGEON CHRONICLE.

THE HEREFORD BREED OF CATTLE.

(Continued from page 237.)

THE farmers of Herefordshire delight in good cattle, and more particularly take pleasure in breeding and rearing the kind of animals which have derived their name from the county in which they originated. Their beef-raising system is their especial boast, and the estimation in which their fat bullocks are held by the butchers and consumers of first-class beef justifies the great interest taken by the graziers in selecting and feeding the choicest of animals. Farm after farm has played its part well, not only on the "home fields" of Hereford and Locominster and under the Norman fortress of Ludlow, but also in a wider sphere each December; formerly on the Smithfield stands and Baker Street Exhibition, but latterly at Islington Metropolitan Christmas Market and also at the Agricultural Hall, where the best of the best of every breed of horned and poled cattle meet each other in

rivalry and contend for the coveted gold medal of the Smithfield Club. Formerly Herefords were not considered as well adapted for dairy purposes, but this arose chiefly from the grazier in the Hereford districts having neglected the female, and bestowed the whole of his attention to the male. This defect, however, may be remedied now gradually, owing to the premiums given at various societies, especially at the Dairy Stock Shows, which will probably induce breeders to emulate each other in rearing superior female stock.

We again quote from Mr. T. Duckham in reply to Mr. J. C. Morton, who made inquiries as to the value of this breed for dairy purposes, and his own statement, together with others from his correspondents, will be found not only interesting, but calculated to show that they can be made profitable for the dairy as well as fit for beef only, and especially in districts distant from Herefordshire. Mr. Duckham states:—"The Hereford is peculiarly a flesh-producing animal, displaying great aptitude to fatten, and unsurpassed for early maturity. The soil of the county, the home of the breed, is not adapted for dairy purposes; thus the general system of calf-rearing is to allow it to run with its dam during the summer months, weaning it when the cow is brought to the straw yard for the winter. In all well-cared-for herds the calf is never allowed to lose the flesh it has thus acquired, but during the winter months it is fed upon hay, roots, and a small allowance of linseed cake, after which, whether steer or heifer, it pays for fairly liberal treatment that it may go out to grass in the spring in fine condition. The steers so managed will at eighteen months old realise £1 per month on their age." Now this very fairly represents the system adopted in their native county; but it must not, as is frequently the case, be supposed that they are not suitable animals for dairy purposes, as will be seen from the letter Mr. Duckham received from a correspondent, Mr. J. W. James, of Mappowder, Dorsetshire, and whose stock we have often seen. He says:—"I do not know I can add much more than I wrote to you a few years ago respecting the Herefords; only I still like them for dairy cows, and find them answer better than any other breed. They are more hardy than Shorthorns or Devons on this land, and give richer milk than Shorthorns. I let two dairies of eighty cows, forty in each dairy, find them in land and hay. The cows calve in January, February, and March. I like the calving to finish by the first week in March, as they are small when turned out on May 20th if taken up later. The calves are taken from their mothers at ten days old and given skim milk, and we always keep some good hay in the rack. When weaned I give them bruised oats, cracked beans, and a little oil cake. I give it them through May and June, and if we have plenty of grass the calves do not care about corn after that time. The first white frost they have hay, say about the latter part of October; but I never give them any straw for bedding. We used to have them die from quarter-evil, now they eat their hay under cover, and when finished out they go under sheltered hedges and lie down. Under this treatment I have not lost one for some years. I generally rear about thirty a year, principally heifer calves. The Herefords fatten with me much better than any other breed. I generally turn out thirty in May, and sell them about Christmas. I find those I breed are better than what I can buy, even at Hereford. The steers are sold at three years and ten months old, but I keep the cows as long as I can; they retain their age wonderfully. I have sold cows nearly twenty year old, and you would think them about ten. With regard to butter and cheese made, it all depends on the season; but I have made inquiries and should say a good season 6 lbs. of butter a week per cow and 1½ cwt. of cheese a year. I let the cows at so much per cow a year, but my agreement is they are not to be milked for ten weeks before they calve; then the cow is strong, and so is the calf when born. When the calf is young the dairyman milks the cow, and leaves what he

thinks enough for the calf, so the udder comes to a good shape. They do not run together; the calf is put in a box and the cow turned out for a few hours. If the Hereford people were to adopt our plan I think they would find the Herefords as good for milk as any other breed. I think the cow is more healthy for being turned out; the stalls are so much sweeter than when they are in all the winter. One thing speaks well for the Herefords—if there is one at any sale she is sure to make a good price."

The system of letting the cows go dry for ten weeks may answer with the Hereford breed if they are not too highly fed during the period; but our experience is that, with other breeds, they would lay on fat internally and endanger the cow at calving time, as they frequently suffer from the downfall in the udder or puerperal fever, besides which it reduces the value of the cow by loss of milk for a period. When the animals are allowed to go dry too soon the lacteal ducts become clogged with coagulated milk, and is often the cause of can-bagged udders, and the frequent loss of one or more teats. If Mr. James's plan is correct it is certainly because the Herefords are known to accumulate less fat internally even when fat than most other breeds.

Other breeders in Dorset keep the Hereford cattle and speak very highly of them. Mr. Chapman Saunders of Watereombe, Dorset, has often stated in our hearing, that having a herd of upwards of a hundred Herefords they answered extremely well as dairy cattle, and we also know that he makes up some noble steers as Christmas beef. We have also information relating to this breed from Australia. A Mr. Charles Price, in communication with Mr. Duckham, writes:—"I am glad to tell you that my herd of 130 are all doing well, and about fifty just commencing to calve. It is considered that 150 or 200 guineas is considered a high price for Hereford cattle. But how if they were to make their calves into steers? I can and do make more of mine than any breeder of Shorthorns in any of the colonies does."

It is recorded that Herefords have been bred at Woburn Abbey by the Duke of Bedford as far back as 1790. Three first Smithfield Club prizes fell to their lot, and it was three of these that John Duke of Bedford, in 1825, beat three of the Hon. Charles Arbuthnot's Shorthorns in a sweepstakes. The chief difficulty with them at Woburn has been to make them milk, and latterly they have merely suckled their calves. As regards milk, "the Herefords generally dry themselves fast enough;" still, if in point of quantity they fall below many other pure breeds the quality of their milk is undeniable. The Prince Consort's Flemish farm (where the Herefords were first specially located in 1855) held its own well under Lieut.-General Lord Bridport's management, both with fat and store beasts, at the Royal Agricultural and the two great Christmas Shows. The Royal Farm winnings with this breed in these three arenas up to the end of 1867 amounted to £400 for twenty-nine prizes, a large proportion of which were firsts, exclusive of gold and silver medals. And as a rule all animals shown were bred on the Royal Farm. The Herefords as fat bullocks took a long lead from the foundation of the Smithfield Club, and up to 1857 inclusive (after which period the different breeds were shown in separate classes) they had won 185 bullock prizes, or only five less than all the other breeds put together including the Shorthorns. At Bingley Hall Show during 1851 to 1867 the gold medal for best bullock in the yard has nine times fallen to their lot. The Berwick grey of Mr. Heath, who showed the best Hereford bullock in the yard three years in succession in Birmingham, will long be remembered for its 9 feet 7 inches girth.

The Hereford are seldom crossed with the Shorthorn, but the blood mixes well when it is pure on both sides. Other crosses are well spoken of, such as the Hereford and Ayrshire, Hereford and Channel Island, especially the Guernsey. In conclusion, for labour in the yoke the Herefords combine the activity of the Devon and the strength of the Durham or Shorthorn. They are very little used in their own county, but the Wiltshire farmers and others buy them at Hereford Fair on the third Tuesday and Wednesday in October, and after ploughing with them for a couple of years they put them into the stalls or boxes for fattening, or pass them on to the Buckinghamshire graziers to be fattened on their rich pastures. The late Mr. Forbes of Echt, in the north of Scotland, used them in teams of six to trench-ploughs, which turned up whin, heather, and stones to the depth of 14 inches. Despite the immense strain upon them they never broke step, whereas horses, if such a task had been set them, would most probably have snapped every trace.

WORK ON THE HOME FARM.

Horse Labour.—On the hill farms and later districts as to climate the horse power may now be employed fully in carting manure on to the lea ground, and also on fallows in preparation for Wheat.

The sooner the land is ploughed the better either of Clover leas or fallows on the stronger soils. We frequently find very strong land upon the chalk hills. Such land would be in fallow after Vetches or Turnips, Rape, &c., fed off by sheep. Where that has been done no yard dung need be applied, especially as the hill fields are usually outlying and distant from the farm premises, artificial manure being added. On such farms, however, the steam cultivator ought to be employed daily until all the land intended for Barley in the spring or root crops next year has been cultivated, and it will then lie rough to take the rains and frosts of winter. If, however, such land has any couch, &c., upon it, it must either be worked out by Howard's self-lifting drag, or if the couch is in a few bunches only it may be forked out by women or old men at low wages. This practice will save the costly horse labour and prove more effectual.

The stormy weather and heavy rains of the last week in August and first few days in this month have made it very difficult to proceed with the carting of Barley where Clover prevailed with it. This matter requires further consideration on the part of the home farmer, because he is not tied to the four-course rotation, which would oblige him to sow the Clover seeds in the Barley if he grew Barley at all. He is, however, fortunately in most cases at liberty to arrange his course of cropping so that the seeds may be grown in Oats, drege, spring Wheat, or Rye, according to circumstances of soil, situation, and climate. In all these crops Clover may not only be grown without injury to the cereal crop, but when the straw is cut a little above the Clover it will not interfere with the harvesting, and will afford a capital autumn growth or cutting as green fodder in those seasons where the harvest is fairly early. When it has been decided to grow winter Beans, winter Oats, or Barley, the work should be done immediately after the seeding of Trifolium, Rye, and Vetches has been completed, and just before the Wheat sowing. Ploughing, pressing, and seeding by the press drill is the surest and most expeditious method; the harrows following the drill presser complete the work simultaneously—a matter of much importance in the short days and uncertain weather of our climate. Those who have not a press drill for use can easily have one attached to an ordinary two-ringed presser for about £4 10s. by almost any implement maker.

We must caution the home farmer not to attempt following any Clover lea intended for Wheat, although there may be some couch in the land, for it proves fatal to a full crop of Wheat nine times out of ten in making what is called a bastard fallow, as the straw generally grows weak and falls before harvest, and seriously injures the yield.

Hand Labour.—When hoeing the late Turnips is finished, the men and women too must soon be employed in raising the Potatoes, and this should first be done by the plough frame made for the purpose, capable of being attached, as it should be, to all horse hoes, the men and women following to pick up the crop and have the tubers stored for the winter in a continuous conical heap about 4 feet wide at the base, and then covered with some coarse dry straw or border grass trimmings, delaying the covering with earth until November. When seaweed can be obtained no earth covering will be required, for if properly laid on it will resist any amount of frost. We, however, have always preferred to sell Potatoes in the ground, the crop to be raised and removed at the purchaser's expense, as this does not then interfere with the ordinary labour of the farm, and we have found no difficulty in obtaining substantial men as purchasers in the vicinity of towns or railway stations. Hedge-trimming must now be completed as soon as possible. The irrigated meadows now should be attended to, so that the drovers or labourers appointed for the purpose of making the watering and drawing trenches may complete the work before the flooding rains of autumn commence, whether they are flood meadows or catch meadows, the latter being so arranged that the water shall be caught by one trench and led to another, and spreading each time over the land by its own gravitation. It is also a fact that much pasture land not so treated may in many instances be irrigated without any expenses except that of properly laying out and making the trenches, which are of two kinds, for the spreading and catching of the water.

Live Stock.—The breeding ewes will now be either in lamb or running with the rams. In either case the abundance of food on all kinds of stubbles or grass land is this year so abundant that they require but little else than a change twice a day from old leas, Sainfoin, or Clover at night to maintain them in good condition. We decidedly object to allowing the ewes to run on the young seeds, as the autumn growth will be great this year and the seeds will afford a cutting of green fodder on good land in the vales; but in other districts where the growth is not strong, it is not only injurious to the Clover in the succeeding winter to feed down bare with sheep, but the food is not well adapted for breeding ewes in lamb. The Dorset horned ewes are now forward in lamb, and must be treated accordingly. The best flocks will commence lambing the first week in October, and in case of the ewes and lambs being required to be fattened and sold together at the earliest period the ewes may be allowed a little cotton cake before they lamb, as many of this breed of ewes bring twin lambs, in which case the higher the condition of the ewes the better they will suckle a numerous fall of lambs.

The cattle fattening in the stalls or boxes may now have Cabbage or hybrid Turnips, as the Swedes are not yet fit for feeding; therefore, as soon as the Clover as green fodder to cut up is finished the vegetable crops should be passed through Gardner's cutter, and the cake or corn both given in the meal state and mixed with the cut

roots, as this plan prevents waste. The quantity of roots given per day should not exceed 56 lbs. and the cake 4 lbs., with 2 lbs. of bean or barley meal, otherwise maize meal. They will then eat a good quantity of sweet Oat straw, which we prefer to hay for two reasons. Hay is too expensive, and we sometimes find the animals refuse their other food when eating hay, but never when allowed straw in the racks without cutting. We never feed with roots and cake more than twice a day, and a little straw at thrice; they will then have plenty of time to ruminate and take their rest undisturbed, quietude being essential to the fattening of cattle under cover. The dairy cows for butter-making should have all the grass possible reserved for them, but the cows for milking for sale of milk may now receive full allowances of roots of any kind, such as Cabbage, Turnips, and Carrots, and hay at the racks, with 3 lbs. of cotton cake per day each in addition.

SCIENTIFIC CHEESE-MAKING.—A French chemist, M. E. Duclaux, has made some interesting experiments in cheese-making, with a view mainly to discover the causes which determine the flavour of cheeses. It has often been asked why cheese made in different districts in a precisely similar manner vary greatly in flavour, while those of one particular spot, although manufactured in very different ways, are almost precisely alike to the taste. The researches of M. Duclaux tend to prove that neither climate, soil, food, manipulation, nor variety in the breed of cows largely affects the quality of the cheese. It would appear rather that a fungus mould allied in some cases to yeast, in others to mould, is communicated by germs in the atmosphere to the cheese, and this it is which gives it its distinguishing flavour. Sanguine people already look forward to the time when the farmer will be enabled to inoculate his cheeses with a variety of ferments, so as to produce Cheddar, Stilton, Parmesan, or Gruyère at will.

INTERNATIONAL DAIRY SHOW, DUBLIN.—This Exhibition is to be held on the premises of the Royal Dublin Society, Ball's Bridge, on the 11th, 12th, and 13th of October of the present year, when prizes will be offered for competition in 117 classes, devoted to dairy cattle, butter, dairy utensils, vehicles, fittings, models or drawings of dairy homesteads, farm produce, poultry, &c.

POULTRY AND PIGEONS

LATE POULTRY SHOWING.

CONTINUING our remarks on this subject from page 238 last week, we may observe that the treatment proper for young birds of those breeds in which size is a great point differs materially from that we have previously described. In this case the great object is to keep them growing steadily as long as possible, and then just to bring them into blooming condition when they are required for exhibition. Of course, we presuppose, as a rule, the separation of the sexes at an early age of all these varieties. This is one of the chief means of keeping them chicken-like. Then they must be fed with nourishing, not exciting, food. Oatmeal gives strength of constitution and stamina for future development. Cockerels require much more support than pullets, and from three to nine months old must have as much as they can eat three times a day. Pullets should be fed as often, but should not at each meal have all that they are willing to eat. House scraps and such dainties should be kept for the cockerels till it is desired to bring the pullets into show condition. A little bone meal is a valuable addition to whatever meals are used for both sexes. Care must be taken that it is genuine bone meal, and not the dust sold by ivory turners. It keeps chickens growing in frame, and does not at all stimulate them.

One of the satisfactory points in late showing is that it gives time to the whole young stock to show their good points, and to younger and more promising ones to pass their elders. Too often at the very early shows forced and precocious birds win simply because they are precocious. They may have serious faults, but a judge dare not pass their flowing tails and rosy combs for mere chickens, though in the end the latter may be ten times as valuable as the former. By October and November the younger birds will have had time to pass their elders in the race. In the case of Dorkings it is wonderful how April and May-hatched birds often grow. We have known chickens hatched in the middle of April carry off the cup at Oxford late in October, and even June birds in the Birmingham prize list at the end of November. Asiatics do not develop nearly so fast; still, with good management chickens hatched early in April may be had of great size by the late autumn.

Pullets which lay very early are seldom of any use for exhibition in autumn. If they become broody a heavy moult follows. They sometimes come out in fresh plumage by Christmas, but then look hen-like, and are liable to be disqualified as old birds. A pullet is

at her perfection of beauty when on the point of laying for the first time. The longer, then, that this stage can be deferred the better. A move to a fresh run will often check laying and consequent development of comb, but we should prefer to retard it merely by keeping our pullets growing and on simple fare if backward in comb. A fortnight before they are absolutely required for show they should be separated from the general flock, put in a good run, and liberally fed. No cock should come near them, or their plumage will be spoilt. The sexes are now shown separately at almost all the great shows. It is a bad plan to exhibit cockerel and pullet together. Here and there lack of space in an exhibition hall makes it a necessity. When this is the case we somewhat against the grain put the cockerel and pullet together a few days beforehand. A first introduction in the exhibition basket is often fatal to the plumage of both.—C.

CARRIER PIGEONS.—An interesting trial of the speed of Carrier Pigeons was made last week by the Paris "Colombophile" Society. Three hundred of these birds were taken from Paris to Oron, in the Canton de Vaud, where they were released. The fleetest arrived at its home in Paris, a distance of 250 kilometres, within six hours and a half, and the slowest arrived only half an hour afterwards, notwithstanding a violent south-western wind which was blowing.

OUR LETTER BOX.

Rye Grass as Manure on Land (*J. W. D. al*).—Your best course would be to sow the land with Mustard or Rape, as that could be ploughed in early in next season, whereas you would have to wait until autumn for the Rye Grass.

Chickens with Gapes (*W. R.*).—The only method of curing gapes which we have found thoroughly effectual is the removal of the small worms, the presence of which in the windpipe of the chick constitutes the disease. This can be done by means of a small quill feather from which the greater part of the feather has been removed, only about half an inch at the end being left on. This must be inserted in the windpipe of the chick, the opening of which will be seen just behind the tongue, gently pushed down as far as it will easily go, twisted round, and drawn out again. It will generally be found that there are a number of small worms adhering to the feather. Care must be taken that the chick is not choked during the operation. A difficulty is sometimes experienced by beginners in getting the feather down the windpipe, but by holding the chick's beak open with the finger and thumb of the left hand applied from behind, and pressing the throat of the chick slightly with one of the other fingers of the same hand, the opening of the windpipe can be clearly seen. If the feather be moistened with spirits of turpentine before use it will be an advantage. The turpentine kills the worms, but the feather must only be moistened, not soaked, with it, as a drop going into the lungs would be fatal to the chick. Another mode of cure recommended is holding the chick until nearly, but not quite, suffocated in the fumes of sulphur or carbolic acid. We have not found this cure at all reliable. Scrupulous cleanliness with a liberal use of disinfectants (such as carbolic powder), and the separation of the infected chicks from the others, are the only means of prevention. The ground is said to become tainted with the germs of this disease, so it is as well where possible to avoid putting other chicks where those with gapes have been.

Mustard and Cress on Farms (*N. S.*).—The quantity of seed required per acre is for the former about 16 lbs., and the latter about 12 lbs.; both should be drilled at about 14 inches apart in order that the land may be hoed if requisite. The produce of these in seed is so various and so much depending upon soil, situation, &c., and the crop being so uncertain and speculative, as well as in some cases seriously injured by small birds before it can be harvested, that we may only mislead some people if we were to name the quantity of seed which is sometimes obtained.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. September.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sun.	3	29.783	62.0	55.8	S.W.	58.6	70.6	55.9	125.2	53.0	—
Mon.	4	30.128	57.8	54.5	N.	58.9	70.3	53.0	116.5	45.0	—
Tues.	5	30.220	62.9	56.3	W.	59.3	65.0	53.4	107.5	47.0	0.465
Wed.	6	30.234	57.2	51.3	N.	58.8	66.2	51.8	119.8	46.1	—
Thurs.	7	30.402	58.4	53.8	N.	58.2	69.0	46.7	119.8	47.0	—
Friday	8	30.393	57.7	52.4	N.	57.5	69.3	46.3	121.5	38.8	—
Satur.	9	30.368	59.6	54.5	N.E.	57.6	67.7	46.2	112.9	39.5	—
		30.218	59.4	54.1		58.4	68.3	50.5	117.6	45.2	0.465

REMARKS.

3rd.—Fair morning, bright afternoon, fine calm evening and night.
 4th.—Cloudy morning, fine and moderately bright afternoon.
 5th.—Dull showery morning, soaking wet afternoon and evening.
 6th.—Fine, bright, pleasant day.
 7th.—Fine bright day, clear cold night.
 8th.—Fine, bright, pleasant day.
 9th.—Fine day, though a little cloudy.
 With the exception of Tuesday a fine and bright week, but showing decided signs of autumn. Temperature above that of the preceding week, and considerably above the average.—G. J. SYMONS.



21st	TH	Northampton Horticultural Show (two days).
22nd	F	
23rd	S	
24th	SUN	16TH SUNDAY AFTER TRINITY.
25th	M	
26th	TU	
27th	W	Sale of Bulbs at Stevens's Rooms, Covent Garden.

CHANGE OF SITUATIONS.

MUCH caution should be exercised by gardeners in changing places, for it is easier to leave one than find another. In nine cases out of ten it is, in my opinion, a mistake, loss, and disadvantage to change situations. In practical gardening it is important to lay a good foundation, and in every branch of the profession it is important to look well ahead, as preparations have to be made for future success. This is true in the management of both flower and kitchen gardens, as well as in making Vine borders and cultivating hothouse plants. Generally speaking it is those who begin well that succeed and rise to distinction. Leaving a garden before the results of good practice are manifest is a great loss to clever young men, and it is equally a loss to their employers, for hardly two gardeners follow the same practice or work on the same lines. Viewed from any standpoint, changing situations is disadvantageous to both employers and employed. This is well known, for in the gardens of gentlemen who change their servants often there is seldom much to admire—nothing first-rate attracts attention. And if the careers of clever young gardeners who unwisely leave situations be followed and examined it will be found that their mistakes have not been unattended by misfortune, mistakes sometimes so great as to excite the sympathy of friends, though accompanied with some disapproval. These things are well known. If there is no remedy—no way of preventing such mistakes—the matter should not be mooted at all; but if such failures can be prevented, why not discuss the matter fully in a common-sense way, with a view to guide young men to begin well, and help them in a career of happiness and success?

Some twelve or fifteen years ago a fine young gardener requested me to find a situation for him. He was asked what he was leaving his present one for. "Because I don't get wages enough." "Is that all?" "Yes." "Have you asked for higher wages?" "No; because I know my employer won't advance my wages." "I know your employer better than you do, and I am certain he will raise your wages if you are a good servant and keep his gardens in good order—that is, if you respectfully ask him for a rise of salary. But pray do not give the slightest hint of leaving his employment, and assure him that you like his place and have no fault at all to find with the treatment you receive, but owing to the high price of meat, bread, and house rent you would feel indebted to him for a rise of salary." When the young man carried out these instructions his master said, "Gardener, I have to buy dear meat and bread as well as you, but I will give you

£10 a year more salary." So far as I know the gardener is still with the same gentleman.

Why are there so many changes of places? Many reasons doubtless could be given, and many men will differ in opinion as to the fundamental cause. It is well known that many ladies and gentlemen do not like changes of servants; and gardeners, for their own sakes and that of their families, should dislike it more, for changes to them often are greater losses and inconvenience than to the employers. Why, then, change situations and look forward to an uncertain future for greater advantages? Why not let well alone and make the most of our present possessions? In my opinion very many men are their own greatest enemies—fight most against their own interests, and are influenced by discontent and undue ambition. I believe in the competency of wise and instructed gardeners to give satisfaction to ninety-nine employers out of every hundred. A great American once said, "I can't do it" never did anything, "I'll try" has done wonders, but "I will do it" has performed prodigies." I like this statement much, for I believe that men who do their duty willingly and cheerfully, and serve their masters to the best of their abilities, are everywhere held in high esteem. In all situations dutiful and upright conduct is highly appreciated. Well, then, let duty to employers be the pole star of service. Gardeners are expected to grow good crops of fruit, vegetables, keep their gardens well, and treat their employers with respect. All this is in the contract, which, if well done, will give satisfaction to all parties, and, moreover, go a long way to prevent separations between masters and servants.

Active thoughtful gardeners consider no effort too great to meet the wishes of their employers. They anticipate their wants and prepare for them beforehand. Unfortunately some men look on service as a kind of slavery, and never enjoy happiness of freedom. Such men are slaves indeed. Others, again, fancy they should be gentlemen without going along the dusty road of duty. Very often they get their reward, which is one of disappointment and discomfort. Let the watchwords of all servants be, "duty" and "willing cheerful service." Let the gardens entrusted to their care be in as perfect a state of keeping as possible. Measure not time or service by the hour, nor decline extra labour.

Failures to please employers arise oftener from inattention and carelessness than from inability. To those who are conscious of having failed to meet their employer's wishes and expectations what can be said? If they are quite certain the fault is not on their side, and that it is impossible for them to keep the gardens well or give satisfaction, we fancy their better way is to leave, first explaining their difficulties to their masters; but if they are conscious of not having fulfilled the duties of their position they ought at once to redouble their efforts by devoting more energy and attention to their work.

One word to young men commencing gardening. If they begin well they will probably continue to do well. During their pupilage or apprenticeship they should give their best attention to the study of gardening in all its branches, for if they acquire a thorough knowledge of it they will become increasingly fond of it. Enthusiasm in any profession is no mean virtue, for such men inspire those around them with a similar feeling. All this tends in the direction of success and distinction. When a head situation falls to the lot of men of this stamp they do not forget to serve, for they love gardening

for its own worth and sake, and do things well. If they succeed in growing fruit and plants well they have an immediate reward. Their virtues and value are highly appreciated. The services of such men and servants are far beyond a money value. Young men, then, have much to encourage them to endeavour to excel in their profession.—A. PETTIGREW, *Bowdon*.

WATERING VINES.

THIS subject has frequently been adverted to in these pages, but it is one of so much importance, and I might say so imperfectly understood, that many readers would do well to give the matter more attention. In nine cases out of ten, especially with amateur growers, I am of opinion that Vines do not receive sufficient water at the roots. Outside borders are frequently well watered naturally, but those wholly or partially under glass are neglected in this respect. The finest-coloured Grapes I have seen this season were on Vines which were almost swamped with water from the time the buds were breaking until the fruit was completely ripe and coloured, and after that they were not dried off in any way. On the other hand, the worst-coloured Grapes I have seen this or any other season were on Vines growing in a border which stood high above the surrounding ground. The gardener had his own ideas about watering, and would never think of giving more to a high border than to a low drainless one, considered that "two waterings were enough," one being given when the Vines were breaking into leaf, and the other when the berries had finished stoning. The result of this was that the Grapes assumed a motley foxy colour, and like this they remained. All other conditions were favourable to proper Grape-growing, but the watering at the roots was greatly deficient, with the result I have stated.

In a contrary case, some young Vines planted last year are now maturing a fine crop. In the hands of a painstaking grower they were most carefully attended to in supplying them with water. The wood and leaves they developed were extraordinary, the fruit has coloured magnificently, and the gardener in charge attributes much of this success to copious watering.

Another bad case may be given. In the spring of this year a gentleman of our acquaintance put up a fine range of vineries. The borders were most carefully made, and the best systems were followed in everything. The greatest success was anticipated. Good young Vines were secured and planted, and at first they gave every indication of making unusual progress; but now they are disappointing, as the long shoots they have made are little thicker than one's finger, and the leaves about the size of our hand. On visiting this vinery the other day we found the atmosphere quite arid, the surface of the border dust-dry, and a tank was pointed out as having been twice emptied on the border during the season. Then we had no hesitation in informing the anxious proprietor that his man had given his Vines about fifty times less water than they ought to have had. "But," says the gardener, "the Vines are ripening their wood, and do not want water at the roots now;" and this also was a mistake, as in their state the wood might ripen quickly but it would not be plump. Had those Vines been under our care they would have received copious waterings every other week, and now they are ripening and throughout the winter we would apply it at the same rate, and all inside borders would be treated in the same way. Of all Vine requirements there are none of so much importance as abundance of water, and without this badly developed wood and inferiorly coloured and flavoured fruit can only be expected. With ordinary good drainage and waterings of the kind we refer to there is little danger of any Vines or Grapes failing.—J. MUIR.

DOUBLE PYRETHRUMS.

THESE plants are of great value for all purposes where good flowers are in demand, whether it be for the decoration of the border or for planting in permanent beds, where they make a splendid show if a good selection of varieties is procured and the colours effectively arranged. They require, too, only a small amount of labour and expense, for even the first outlay in the purchase of stock is nominal; and there is no need of further expenditure unless fresh varieties are required, for they are most easily increased by dividing the roots after the season, or any time, in fact, so that the divisions can establish themselves again previous to sharp weather. During the last fortnight I have divided many plants; and as it was desirable to increase my stock very largely, they were cut into very small pieces and potted separately, and placed in a cold frame, where they will be kept close and shaded until root-action is again resumed, when they may be gradually exposed and finally planted out.

The present is perhaps the best time to plant, as after this they make very rapid growth until the frost entirely checks it; and it is well in the case of young plants to cut away all stems which attempt to flower, so as to give the stool the full advantage of all the roots; thus much stronger plants will be the result, and a much finer show of flowers will be had next year. To obtain good results the ground should be well enriched with decayed manure, spent hotbed material being very suitable for them. The ground should be deeply dug, or even trenched, and the manure deeply buried, as they are deep-rooting plants, which is a great advantage during very dry weather, and if the manure is well buried the plants are benefited twofold. Pig manure I consider very prejudicial, as I have known the plants to suddenly die on more than one occasion where such was used without any other apparent cause.

The nature of the soil need not be an obstacle in the way of their much more extended cultivation, for I have known them to thrive in all kinds of soil. Very heavy damp soils are least suitable to them; they will make rapid coarse growth in such, but flower very poorly, and usually die suddenly. Light well-enriched soils are the best, and a sunny position, when they make much more roots and are more floriferous, and can consequently be much more largely increased. Good strong plants well established in pots are the best to begin with, and when once planted they will require no further attention until the flower heads appear next season, when stakes will be necessary for their support, or their weight will cause the stalks to bend to the soil.

The number of varieties is very large, but many of them are very similar. Those named below are selected from a collection of nearly a hundred, and they are certainly distinct and very showy, and others might be added without exhausting the good varieties. *Niveum plenum*, a very fine white-flowered kind, very free, and the flowers are full of good petals, pure white, with slightly yellow centre. *Mont Blanc*, more robust than the last; flowers not quite so double, pure white, less yellow in the centre; a splendid kind. *Virginale* is another white, very free, and the flowers are very large, with rather long outside florets. The above are the three best white-flowered varieties in my opinion. *Dr. Livingstone* is an extremely free variety, with large spreading and very double flowers of a delicate flesh colour. *La Vestale* has richly blush-tinted flowers, large and numerous. *Madame Munier* is in the same way, but deep in colour and very free, the flower stems being rather more freely branched than most kinds. *Panorama* is a delicate blush, with the tip of the outermost florets yellow; a very double and large flower. *Aurora* has sulphur-coloured flowers, very double, with deep yellow centre. *Madame Benary* is also a yellowish-coloured variety with a good flower and free disposition.

Among the very numerous rose-flowered kinds there are five extremely good—viz., *floribundum plenum*, rich rosy pink, very double and free; *Herman Stenger*, rich lilac rose, a very finely formed flower and very robust, one of the best varieties; *Modèle*, bright rose, very free; *Mons. Barral*, rich rosy red, very conspicuous, and certainly a leading kind; *Nemesis*, deep rose, with the outer flowers distinctly tipped with crimson, very showy indeed; *Spectabile*, light rosy lilac, very floriferous, and certainly distinct in colour. Among the deeper shades of colour are *Captain Nares*, rich purplish crimson flowers of excellent form and profuse; a leading kind. *Emile Lemoine*, flowers large, deep crimson edge with yellow; very distinct and handsome. *Fulgens plenissimum*, rich carmine; excellent form, and very free both in growth and flowering. *Gloire d'Italie*, a grand variety; flowers intense crimson, and very freely produced. This is very largely grown. *Michael Buchner*, almost equally good flowers, deep magenta crimson and very large; in fact I have known it larger than any. *Haage et Schmidt*, a very floriferous kind, similar in colour to the last; very dwarf and robust. *Purple Prince*, a splendid variety with purple-carmine flowers. These deep-coloured kinds are extremely showy when well arranged. In clumps they are particularly effective either when wholly composed of one variety, or so arranged with the white and light-flowered sorts that the flowers are intermingled. If the different colours are arranged in lines, as we frequently see them in nurseries where they are largely grown, the effect is unique, and the abundance of flower is astonishing.—N.

POTATOES AND PEAS.

Potatoes.—We have not had many kinds this year, and never had fewer diseased tubers. This is not owing to cultivation, but to selection. Two or three years ago, when we had scores of sorts on trial, it was difficult to save the seed of some of them; but those we soon discarded, and by degrees we reduced our stock to the

best bearing and disease-resisting kinds. Now we have only some half a dozen varieties. These are Schoolmaster, Magnum Bonum, Scotch Champion, Improved Peach Blow, Gloucester Kidney, and Mona's Pride. Probably we may yet discard Peach Blow and the Champion, but the others are excellent. Not one in a hundredweight of Schoolmaster nor Magnum Bonum are diseased, and we advise all who grow Potatoes in garden or field to give those two a good trial.

Peas.—These have been very satisfactory this season. Mildew has hardly existed. Had it become bad, good quantities of soot water have been given to check it. Of new kinds Webb's Electric Light has done well. It grows about 5 feet high. The pods are rather narrow and dark green in colour; on an average they contain nine and ten well-flavoured peas. It is very prolific, the pods being crowded with peas, and appears well worth growing in all gardens. Walker's Perpetual Bearing is another good variety. It does not become ready for use so soon as the preceding, but it continues bearing much later. The pods come in long succession, and the produce is well flavoured. Day's Sunrise will be grown again. It has a splendid constitution, is an enormous bearer, and good for coming in very early or late in the season. It may be termed a good all-round Pea. Of larger kinds Culverwell's Giant Marrow has everything to recommend it. It grows most freely and robustly. The pods form and fill well from the first, there being frequently as many as twelve peas in them. The flavour is second to none, and it might well be termed the Pea of Peas. There is another of Mr. Culverwell's seedlings, but it is now in the hands of Mr. May of Leeds, and is not yet in commerce. It is as robust as the Giant Marrow, also as prolific and good, the chief differences being that it is a little narrower in the pods and paler in colour. As a brace of Peas these two would be difficult to match. Laxton's Omega is always a favourite late sort. Woodford's Marrow, and some more of the "good old Marrows," are far inferior to the newer kinds. It will be long before Telegraph is pressed out of the market. It is grown in almost every garden throughout the country, being much valued for its deep green colour and other good qualities.—A KITCHEN GARDENER.

COSMOS BIPINNATUS.

THE plant shown in the woodcut (fig. 43) is a beautiful Mexican annual that is far too seldom seen in gardens, as it well merits a place in the border or on the rockery. Its rich rose-coloured flowers and divided leaves give it a unique appearance, readily distinguishing it from its numerous allies in the great family Compositæ to which it belongs. It is an old plant, having been described by Cavanilles in 1791 from specimens which flowered at Madrid in the autumn of 1789, and it is said to have been introduced to England about twelve years subsequently, although it is still comparatively rare. Willdenow changed the name to *Cosmea*, but the older title is now generally adopted. The plant well deserves its name, which signifies "beautiful."

NOTES ON ROSES AND TOMATOES.

I AM very glad "ROSARIAN" has written so decidedly about standards. I daresay your readers may think I am prejudiced, but he has very concisely and practically stated what I have always considered the objections to them. In 1860 I lost every standard I had but two out of about 150. Old Baronne Prevost and Général Jacqueminot were the only two that lived. I made up my mind I would never plant another, but a friend of mine made me a present of a dozen a few years after, from some which he had imported from a French nursery; but another severe winter (I forget exactly which winter it was) again killed every one. I maintain it is contrary to the nature of a Rose to grow it in the way standards have to be pruned and treated. A Rose naturally recuperates itself from the base by throwing up young and vigorous shoots, especially if care is taken to cut away all old wood that is more than two years old.

I am quite sure that Mr. Bardney is right in recommending amateurs to try their success in growing Roses on their own roots from cuttings. I am also quite sure in my own mind that the reason why Roses on the Manetti succeed so well, as a rule, on ordinary good garden soil is that after two or three years, if the junction of the scion and the stock is sufficiently covered with soil when planted, the Roses soon get established on their own roots, especially those which are more vigorous in growth. Very likely the dwarf and tender sorts, especially if the soil is at all clayey or damp, or if the aspect is unfavourable, may succeed in that case better either on seedling Briar or on cultivated Briar cuttings.

Where the failure of standards and half-standards often arises

is from the way in which they are in the first instance rooted-up ruthlessly from the hedgerows by men who in late autumn or during the winter, when other work is slack, go round with a bill-hook and a small-pointed long draining spade and cut them out of the hedgerows, regardless of their roots. They are then tied up in bundles, perhaps laid in a shed, or earthed-up for a time in some outlying place, till there is a sufficient number collected to take to a Rose nursery for sale. These stocks are then planted, and all that shoot sufficiently strongly are budded when the time comes; but the question is, How many of these have really recovered their rough treatment? and how many will bear transplanting at the end of another year or two years, as the case may be? I believe any person who has a cold frame facing north, as



Fig. 43.—*Cosmos bipinnatus*.

some have, at the back of a vinery or stove may strike Roses very well by putting from 5 to 6 inches of good light soil—half leaf soil and sandy loam being the best—and dibble in good strong cuttings from 6 to 8 inches long, covering all afterwards with riddled ashes, and after a good watering with a rose keep the lights close, only ventilating occasionally on dull days. There is hardly any necessity for watering again unless the frames get very dry, or till there are signs of fresh growth in the earlier spring months.

"W. E. G." sends some very useful remarks on Tomatoes. I can strongly recommend growing Tomatoes from cuttings and not from seed. I grew several from a mixed packet of seed last year, and selected out from some which I had in pots in a vinery one which bore more freely and had better-flavoured fruit than any other. I do not know its name, but I will send two or three fruits next week to see if it can be recognised. I grew some seedlings I saved from it, but I also struck it pretty freely, and am

growing it in pots from 8 to 10 inches in size on shelves in theinery, and also on the stage of a small lean-to 18 by 10, facing south against the back wall; but in every case the cuttings have fruited better than the seedlings, and I have gathered two or three dishes every week since 1st of June. I have both seedlings and cuttings out of doors against a south wall, but in every case the cuttings are dwarfer and surer bearers, and some seedlings from Trophy are of no use whatever. When in Cardiganshire two years ago I tasted a great many varieties, such as Greengage, Golden Drop, &c., but do not think any of them are better than the older varieties of Orangefield and Tomato de Laye. I cannot see the advantage of growing them too large or coarse, and I think the rounder and smoother varieties, when well ripened in a house, are much the best for table purposes.—C. P. P.

[The fruit sent was the true Orangefield, a most useful variety, and one which is grown in many large establishments in preference to all others.]

ROYAL CALEDONIAN HORTICULTURAL SOCIETY'S (INTERNATIONAL) SHOW.

EDINBURGH, SEPTEMBER 13TH AND 14TH.

SEVEN years ago the Society which has done so much for the promotion of horticulture in the north—indeed in the kingdom, achieved a triumph in the character of an exhibition which has been deeply graven on the page of history, by having been the scene of a contest unrivalled in the annals of Grape culture. Those who had the privilege of inspecting the grand display of fruit on that occasion, even exclusive of the nearly quarter-hundredweight bunches of Grapes, will not soon forget it. Undoubtedly the prestige of that great Show—infinity too large for the building in which it was held—has continued to the present time, and has in no small degree stimulated the wide public interest that was manifested in the Exhibition we have now to describe. By the earnestness of individuals and the enterprise of societies some great undertaking is organised from time to time, to which the attention of horticulturists is directed from every district in Great Britain. Since the last Edinburgh tournament we have had the Carlisle "International," and its attendant deluge in 1877; the Preston fiasco, and the same concomitant—rain—in 1878; and last year the great Manchester gathering, and the deluge again; and now the turn of Edinburgh has come round once more.

Great provision was made for the Show under notice. The schedule was characteristically northern, sober but sound. It was divided into eight classes—what in the south would be termed sections—and embraced 175 sections—what are generally known as classes. Thus to the majority of readers there was a topsy-turverdom of terms. It will be convenient to us, as well as more intelligible to readers generally, to adopt the ordinary form—namely, to regard the exhibits as arranged in classes under eight sections or divisions. The first division contained six classes for Pines, the prizes ranging from £3 to 10s.; three collections of Grapes, two of six and one of four varieties, the prizes ranging from £8 to £1; classes for two bunches each of all the leading varieties of Grapes, with corresponding classes for single bunches and for seedlings, the prizes ruling from £3 to £1, only two prizes, however, being provided in several of the classes. Division 2 was devoted entirely to Grapes, in fifteen classes, in none of which the exhibitors in the thirty-seven classes in Division 1 could compete—a wise provision—as thus a field was provided in which the greatest possible number could win a place in the prize list. Altogether upwards of a hundred prizes were provided for Grapes alone, of the aggregate value of nearly £170. Division 3 was, except in three collections, for fruits other than Pines and Grapes. Division 4 was for fruits of foreign growth, £160 being offered in six prizes. It was in virtue of this offer that the term "International" was justified, although in all probability competition was scarcely expected, and perhaps not urgently required. Division 5 was for plants from gardeners and amateurs in thirty-seven classes, the chief for ten stove and greenhouse specimens, for which the prizes were £20, £15, and £10. The last-named sum was also provided for the first prize for six plants, and for a table of plants 20 by 5 feet for quality and effect. In this section also were fifteen classes for cut flowers. Division 6 was for dinner-table decorations; Division 7 for nurserymen's plants and cut flowers, the prizes not exceeding those offered in the preceding sections; and Division 8 contained fifteen classes for vegetables. Altogether provision was made for awarding 450 prizes, of the collective amount of nearly £1000; and now let us see the result.

The response of exhibitors was at once great and gratifying—great because they produced an Exhibition that must rank as one of the finest that has been seen; and gratifying because the products as a whole were a honour to the cultivators, even to many of those who failed to obtain a place in the prize list. The entries exceeded two thousand, and we were told, what is a remarkable circumstance, and evidence at once of the earnestness of the competitors, and at the same time highly creditable to them—namely, that only one failed to meet his engagement and appropriate the space allotted to him.

The Show was held in the Waverley Market—a glass-roofed building upwards of 300 feet long and 150 feet wide, a side gallery

surrounding it—the finest and most convenient place for an exhibition we have seen, as the vans containing the plants, &c., could be brought to the side of the tables. These, 18 inches high and 6 feet wide, were arranged in seven rows, but not unbroken rows, for spaces were left between at intervals for facilities of promenade, and thus everything could be conveniently inspected. A table was also formed along one side and both ends of the building for vegetables and hardy fruit. The whole of this space was filled—crowded—and, what is especially worthy of mention, there were fewer exhibits of an inferior character than we ever noticed at an exhibition approaching this in magnitude; indeed, there was scarcely anything but what was creditable to the respective cultivators. In referring to the classes we shall follow the order of the schedule in giving priority to the fruit; but the classes will not be followed exactly according to their arrangement, as we shall commence with what formed unquestionably the greatest feature of the Show—namely,

GRAPES.

Prominence was appropriately given to these, the prince of exotic fruits, no less than forty classes being devoted to them. The display was a splendid one, by far the best that has been seen this year in this or, it may be said with much confidence, in any other country, some fourteen hundred bunches being placed in competition. A few were small and unripe, but only a few; the majority were undoubtedly of excellent quality—indeed to secure a third place in some of the classes was a greater honour than would be achieved by a first position at the majority of exhibitions. In the special class for two bunches each of six varieties eleven very fine collections were staged, Mr. McIndoe, gardener to Sir Jos. Pease, Bart., Hutton Hall, securing the coveted position. Gros Guillaume, grand bunches, about 9 lbs. full, and with fine berries; Trebbiano, equally large and good; Black Hamburg, about 3 lbs., good hammered berries; Golden Champion, nearly the same size, good berries, and very clear; Gros Colman, of full average quality; and Mrs. Pince's Muscat, full and regular but not quite ripe. Mr. Hunter, gardener to the Earl of Durham, Lambton Castle, followed with Golden Champion and Gros Colman, both fine; Trebbiano, Alicante, and Gros Guillaume, large, 6 lbs.; and Muscat of Alexandria, good. The third prize falling to Mr. Kirk, gardener to Thomson Paton, Esq., Norwood, for even 2-lb. bunches, with splendid berries of Gros Colman, Muscat Hamburg, Alnwick Seedling, Duke of Buccleuch, Black Hamburg, and Muscat of Alexandria. This exhibitor has only, we are told, a smallinery. Mr. McKelvie, gardener to Dowager Duchess of Roxburgh, Broommouth; Mr. Hammond, Brayton, and Mr. Johnston, Glammis, had wonderfully fine collections.

For the best six sorts of Grapes, one bunch of each, ten collections were staged, which contained many splendid examples of culture. Mr. Hunter was awarded the chief honours with Muscat of Alexandria, 4 lbs., full and fine; Gros Guillaume, heavier, also fine; Mrs. Pearson, 1 lb., neat, well finished; Gros Colman, a small, but model in shape and finish; Calabrian Raisin, 3 lbs., full and ripe; Black Alicante, 5 lbs., full and well finished, and Trebbiano weighing 7 or 8 lbs. Mr. Kirk was placed second with superb examples similar to those referred to in the previous class, and Mr. McKelvie third with heavier bunches; Muscat of Alexandria 5 to 6 lbs., splendid; Gros Colman and Buckland Sweetwater 2 lbs., superior; neat Black Prince and Black Hamburg, with a large bunch of Calabrian Raisin. Messrs. Roberts, Goodacre (Elvaston Castle Gardens), and Lees staged very good collections. In the class for four varieties, one bunch of each, the competitors in the two preceding classes excluded, seven collections were staged. First, Mr. Elphinstone, gardener to E. W. Mundy, Esq., Shipley, Derby, with Gros Colman, splendid berries; Golden Queen, fine; Muscat of Alexandria, small but ripe; and Madresfield Court, very good. Second, Mr. Dickson, gardener to J. W. Melville, Esq., St. Andrew's, with Golden Queen, Muscat of Alexandria, Black Hamburg, and Gros Colman, all superb quality, bunches averaging 1½ lb. Third, Mr. Roberts, gardener to Lady Emily Howard, Tullamore, with large loose bunches, but berries ripe and well finished.

We now come to the two-bunch classes. For two bunches of Black Hamburgs ten lots were staged, a few being brown. Mr. McIndoe was first; 2-lb. bunches and very fine berries, not all, however, jet black. Mr. McIntyre, gardener to C. Tennent, Esq., M.P., The Glen, Innerleithen, second with smaller bunches but better berries. Mr. Roberts, Gunnersbury, third; had his berries been a trifle larger he would have been first, for they were the blackest of all.

Remarks were freely exchanged relative to what may be termed the comparative weakness of the Black Hamburgs, but the fact is this: The "Hamburg season" is practically over so far as regards the finish of this fine old Grape, for although the fruit will hang long and retain its good quality, it will not retain its density of bloom, and bunches that were splendid a fortnight or three weeks ago are by no means so attractive in appearance now.

Two bunches of Muscat Hamburg.—The first prize was awarded to Mr. G. Reid, gardener to A. Moncur, Esq., Rockfield, Dundee, with 1-lb. bunches, full, regular, well-finished berries; the second to Mr. Roberts, Gunnersbury, with bunches as large again and full, but not perfectly ripe. We did not see a third award, but Mr. Elphinstone deserved that position.

Two bunches of Madresfield Court.—This was an excellent class of seven competitors. First, Mr. Goodacre with almost faultless produce, but berries a trifle small; second, Mr. Roberts, Gunners-

bury, with medium bunches and grand berries; third, Mr. McKelvie, Broxmouth, large but not quite ripe. Fully equal to these appeared two bunches from Mr. Fennell, gardener to E. Cazalet, Esq., Fairlawn, Tonbridge, which, however, failed to obtain a place.

Two bunches of Black Alicante. A splendid class of sixteen competitors.—First, Mr. Wallis, Keele Hall; bunches about 2 lbs. and berries highly finished. Second, Mr. Hunter, also finely finished; bunches good. Third, Mr. Roberts, gardener to Hussey Packe, Esq., Prestwold Hall; very fine. None of the very large bunches in this class had highly finished berries, and the Judges wisely attached the first importance to quality. This, however, was not quite the case throughout the Show.

Two bunches of Gros Colman.—A grand class of twelve competitors, Mr. Wallis being well placed first with singularly fine and well-coloured berries; bunches about 2 lbs. Mr. Elphinstone a close second with fine examples; and Mr. Upjohn, gardener to the Earl of Ellesmere, Worsley Hall, Manchester, an excellent third. Mr. Hammond staged the largest bunches, but with one or two decayed berries, which lost them a position in the prize list.

Two bunches of Lady Downe's. Fourteen collections.—First, Mr. McKelvie, Broxmouth; 2-lb. bunches of neat form, full, regular, and well finished. Second, Mr. McIndoe with equally good berries. Third, Mr. Wallis, also good, but the berries rubbed in transit.

Two bunches of any other black variety.—Fourteen lots were staged in this class, the chief prize falling to the successful Mr. McIndoe with splendid examples of Gros Guillaume; 6 or 7 lbs. Second, Mr. Wallis with smaller bunches, but wonderfully fine berries of the same variety; and third Mr. Hudson, The Gardens, Gunnersbury House, Acton. Bunches of Cooper's Late in this class, staged by Mr. Lees, were very good.

Two bunches of Muscat of Alexandria.—Thirteen collections of remarkable excellence were staged in this class; Mr. Day, gardener to H. T. Brodhurst, Esq., Garliestown, being first with large, full, and decidedly superior examples. Second, Mr. D. Murray, Culzean Castle, Maybole; and third, Mr. G. Mackinnon, gardener to Lord Melville, both staging bunches 2 to 3 lbs. of great excellence. Mr. Hill, Tring Park, and Mr. McKelvie staged very fine examples. It should be added that a Veitch Memorial medal and £5 were deservedly awarded to Mr. Day for his splendid Muscats as the finest white Grapes in the Show.

Two bunches of the Duke of Buccleuch.—Mr. McIndoe was the only exhibitor, the bunches weighing not more than a pound each, but berries of good size and high finish.

Two bunches of any other white Grape.—Of the sixteen lots staged the best came from Mr. John Gray, gardener to Rev. J. H. Turnbull, Lismahagow, who secured the first place with splendid bunches of Buckland Sweetwater weighing 6 to 7 lbs. Second, Mr. Wallis with Golden Queen, good, full, clear, and ripe. Third, Mr. Dickson, St. Andrews, with the same variety.

The single-bunch classes now follow. One bunch of Black Hamburg brought out only four entries, Mr. McIndoe being decidedly first with a small bunch with berries of good size and quality. Mr. Boyd, gardener to W. Forbes, Esq., Callender Park, Falkirk, an excellent second, but neither bunch superior. One of Black Alicante (ten competitors), Mr. D. Roberts, gardener to Hussey Packe, Esq., being first with a bunch about 1½ lb., fine in berry and superbly finished; Mr. Jas. Maconochie, gardener to P. B. Smollett, Esq., Cameron House, Alexandria, closely following with a little larger bunch, but not such well-finished berries. Twelve bunches were exhibited in the class for one bunch of Lady Downe's, Mr. W. Elphinstone winning the premier place with a 1-lb. bunch and splendid berries, followed by Mr. W. Lees, gardener to the Marquis of Downshire, with a larger bunch and good—a creditable class. One of Alnwick Seedling.—Five excellent bunches were staged, Mr. Bell, Clive House, Alnwick, securing the first prize with a bunch of about 1½ lb. and splendid berries; Mr. Roberts, Gunnersbury, closely following with a larger bunch and excellent—a fine class. One bunch of Gros Maroc.—Mr. Wallis staged a small bunch with beautifully finished and large berries, securing the first place, Mr. McIndoe closely following. Three lots.

One bunch of Muscat of Alexandria.—Fifteen bunches were placed in competition in this excellent class, every one of them being creditable to the cultivators; Mr. Day, Garliestown, being first with a good-shaped bunch of 2 lbs. and superbly finished large berries, followed by Mr. McKelvie, Broxmouth, with a larger bunch of excellent quality. Mr. Gordon, Greenock, Mr. Gellatly, gardener to the Earl of Wemyss, Gosford, and Mr. Austin, Ashton Court, deserve honourable mention in this fine class. One bunch of Golden Champion.—Only three bunches were staged, but all good. First, Mr. James Brown, gardener to C. H. S. D. Moray, Esq., Abercairney; bunch of nearly 3 lbs., berries good and clear. Mr. Roberts, Gunnersbury, a very close second with larger berries and nearly clear. One bunch of Mrs. Pearson.—Mr. Hill, Keele, and Mr. Austin, Ashton Court, were placed in the order named, both exhibiting neat three-quarter-pound bunches and clear berries, and we thought the remaining bunch from Mr. Hunter as good as either of them.

One heaviest bunch of black Grapes.—First Mr. Roberts, Tullamore, with Gros Guillaume, 18 lbs., not ripe; second Mr. McIndoe with the same variety, 10 lbs. 8 ozs., and of fine quality. Five competitors. One heaviest bunch of white Grapes.—First Mr. McIndoe with Trebbiano, 10 lbs. 4 ozs., full and fine berries; second Mr.

Hannah, Monreith Gardens. Several decidedly not large, but certainly inferior Grapes were staged in these classes.

One bunch of finest-flavoured black Grapes.—First Mr. McIndoe with Madresfield Court; second Mr. Brunton, Gilmerton Gardens, Drem. Finest-flavoured white.—First Mr. Roberts, Gunnersbury, with Duchess of Buccleuch, small, rich; second Mr. Souza, gardener to Sir H. J. S. Stewart, Bart., Touch House, with the same variety; third Mr. Way with Muscat of Alexandria. One bunch having the finest bloom.—Twelve very attractive bunches were staged. First Mr. Wallis with Gros Colman, superb; second Mr. Johnston, Glamis, with Gosford Black, a little smaller than Gros Colman. No awards were made for seedling Grapes, although several bunches were exhibited.

Exhibitors in the above classes were not allowed to compete in the following. Six bunches, in not less than three varieties.—Five competitors entered, Mr. Witherspoon, Red Rose Vineries, Chester-le-Street, being placed first with Gros Maroc very fine but not quite ripe, excellent Buckland Sweetwater, and very good Foster's Seedling, Madresfield Court, Alnwick Seedling, and well-coloured Mrs. Pince. Second Mr. McLure, gardener to John Milne, Esq., Trinity, with Duke of Buccleuch small but good, Alicante good, Muscat of Alexandria and Black Hamburg small but ripe. Third Mr. McLeod, gardener to G. Younger, Esq., Westbourne House, Tillicoultry, his noteworthy bunches being of Abercairney Seedling, resembling well-finished Alicantes but rather small. Two bunches of Black Hamburgs.—Mr. G. Finlay, gardener to Mrs. Maynard, East Layton Hall, Darlington, was first with excellent produce. Mr. Young, Edinburgh, a good second. Seven lots. Two bunches of Black Alicante.—Seven also competed in this class, the first prize going to Mr. W. Collins, gardener to J. Ballantyne, Esq., Walkerburn, with highly creditable bunches and fine and well-finished berries. Second Mr. McLeod, smaller but very good. Two bunches of Lady Downe's.—First Mr. Shaw, gardener to Lord Muncaster, Ravensglass, Carnforth; second Mr. Hugh Watson, Stirling—a neat but not ripe class. Two bunches of Muscat of Alexandria.—First Mr. McLure with well-shaped bunches and berries of excellent finish; second Mr. James Harper, gardener to J. Russell, Esq., Dundas Castle, fine but not quite ripe.

One bunch of Black Hamburg.—Eleven bunches were staged. First Mr. Jeffrey, gardener to A. Pringle, Esq., Langholm, splendid berries, bunch less than a pound weight. Second Mr. Watson, Stirling, also small but good. One bunch of Madresfield Court.—First Mr. McDonald, gardener to J. Younger, Esq., Ashfield, small but neat. Second Mr. Harper, large berries but not quite ripe. One bunch of Black Alicante.—Ten bunches competed. First Mr. Collins with very well-finished berries; second Mr. Harper with excellent produce. One bunch of Lady Downe's.—First Mr. Grey, gardener to W. Christie, Esq., Craigend Park, very good; second Mr. Jeffrey, both having very fine berries. One bunch of any other black variety.—First Mr. McLeod with Abercairney Seedling; second Mr. Witherspoon with Gros Maroc, very fine but not quite ripe, cut from a graft attached in the spring. One bunch of Muscat of Alexandria.—First Mr. Jeffrey, fine quality; second Mr. McLure, larger but not quite ripe. The last-named exhibitor was also first for one of Duke of Buccleuch; it weighed about a pound, and the berries were good and clear. One bunch of Golden Champion.—First Mr. Grey, small bunch, fine clear berries; second Mr. Kay, gardener to Sir J. L. Foulis, Bart., large but rather loose, yet of good quality. One white of any other sort.—First Mr. Young with good Muscats; second Mr. Witherspoon with Buckland Sweetwater, good berries.

A basket of Alnwick Seedling Grapes from the original Vine planted in 1870, bearing fifty-six bunches of an aggregate weight of 100 lbs., exhibited by Mr. Bell, Clive House, Alnwick, commanded general admiration by their size and splendid quality.

COLLECTIONS OF FRUIT.

The splendid competition in the three classes formed in the aggregate a grand display, 124 dishes being staged, most of them of great excellence, some of superlative merit, and scarcely any that was not worthy of being included in a good dessert. In the class for twelve sorts of fruit, including two Pines, two sorts of Grapes, two Melons, and six other kinds of fruit, there were five competitors. The redoubtable Mr. McIndoe won the chief position with grand Gros Guillaume and Trebbiano Grapes, the four bunches averaging 9 to 10 lbs. each; Charlotte Rothschild Pine, 9 lbs., but not quite ripe; a fair Queen Pine, with good Melons, Peaches, Plums, and Pears, and rather small Nectarines, Apricots, and Figs. Mr. Goodacre was an excellent second with beautiful Pines, very fine Madresfield Court and Muscat of Alexandria Grapes, good Melons and Apples, Figs and Plums being rather small. Mr. Austin, gardener to Sir Greville Smythe, Ashton Court, Bristol, was an extremely close third. His Grapes were of superb quality, Pines rather small but in prime condition; Peaches, Pears, and Figs very fine; Melons, Apples, Nectarines, and Plums good. It was thought by many that the superior quality of the fruit of the two last-named exhibitors would have placed them higher, but they were overweighted by Mr. McIndoe's grand Grapes. The last-named gardener—the premier exhibitor in one of the best fruit shows that has ever been seen—was also awarded two Veitch Memorial medals and £10 for the best collection of fruit and the best black Grapes in the Exhibition.

There were five competitors also in the class for twelve sorts exclusive of Pines, and not more than two sorts of Grapes. Mr. Hunter

of Lambton Castle won the chief position here with highly superior Muscat of Alexandria and Black Alicante Grapes, bunches from 3 to 4 lbs., and berries large and excellently finished; also capital dishes of Peaches, Nectarines, Melons, Plums, and Figs, and good Apples and Pears. Mr. Dickson, Mount Melville, St. Andrews, was placed second with Muscat Grapes of high quality and very good Black Hamburgs, Peaches, Nectarines, Melons, and Figs of good dessert quality, but not of striking excellence. Mr. McKelvie was third with heavy and fine Black Hamburg and Muscat Grapes, good Melons, three fair dishes of Peaches, one of Nectarines, two of Plums, and one each of Figs and Apricots of average merit.

Twelve dishes, exclusive of Pines and Grapes.—Seven excellent collections were staged, Mr. McIndoe being placed in the first position with McIndoe's Premier and Best of All Melons, both good; excellent Negro Largo and Brunswick Figs, Kirke's and Jefferson Plums, Louise Bonne of Jersey and Beurré d'Amanlis Pears, Royal George Peaches, Belle Magnifique Cherries, and Hemskerk Apricots. Second Mr. Williamson, gardener to J. H. Rigg, Esq., Tarvit; Peaches, Nectarines, and Plums being very fine. Third Mr. P. W. Fairgrieve, Dunkeld, an excellent third, Ickworth Impératrice Plums being splendid, and Kirke's, with Peaches and Melons good. Mr. G. Barrie, gardener to J. Fletcher, Esq., of Saltown exhibited a very fine collection. Mr. Brunton, Gilmerton, Drem; Mr. Kerr, gardener to W. Scott Kerr, Esq., Sunlaws, also staged excellent fruit in this excellent class.

PINES.

The display of these was by no means extensive nor strikingly meritorious. In the class for two plants in pots bearing ripe fruit, Mr. Calderhead, The Gardens, Wemyss Castle, Fife, secured the first position with average examples; Mr. McIntyre, The Glen, Innerleithen, being second; and Mr. Westcott of Raby Castle third, who exhibited what was represented as a twin plant, two fruits having issued from a crown of Smooth Cayenne that had been damaged, the second, a sport—Charlotte Rothschild? This is certainly remarkable, if there has been no mistake. In the class for two Smooth-leaved Cayennes Mr. McIntyre, so far as we could learn, was the chief prize-winner; for two Queens, Messrs. Calderhead, Johnstone, and McIndoe; For Charlotte Rothschild Mr. Goodacre; and for any other sort Mr. McIndoe with Prince Albert. Owing to displacement or non-attachment of cards we were unable to ascertain satisfactorily the results in some of the Pine classes.

MELONS AND FIGS.

Melons.—About seventy fruits were staged, many of them very good, and few inferior; by far the finest exhibition of Melons seen this year. In this green-flesh class, Mr. McIndoe was first with a beautiful example of Best of All, 3 to 4 lbs.; Mr. Maule, gardener to J. C. Hope Vere, Esq., Lasmalayan, second with Colston Bassett, 2 to 3 lbs.; and Mr. Elphinstone third with Hero of Lockinge, 2 lbs. Best scarlet-fleshed—first, Mr. McKelvie with Bloxholm Hall, well netted, and weighing about 3 lbs.; second, Mr. McIntosh, gardener to Col. David Milne Home, Esq., M.P., Paxton House, Berwickshire, with a smaller fruit of the same variety; third, Mr. Watson, Stirling, with Christian's Favourite. Mr. Pratt exhibited his seedling Melon Hawkstone Seedling, which was highly commended by the Judges, the variety that was certificated at Manchester last year.

Figs.—Eight very fine dishes were staged. First, Mr. Boyd, Calender Park, Falkirk, with Brown Turkey; second, Mr. Wallis, Keele, with White Ischia; third, Mr. Heggie, gardener to the Dowager Duchess of Northumberland, with Osborne's Prolific.

PEACHES AND NECTARINES.

Peaches.—Twelve dishes of twelve remarkably fine fruits were placed in competition, but as a rule they were rather deficient in colour owing to the dull and wet season in the north. Mr. A. McMillan, gardener to W. McBaire, Esq., was first with large fruits unnamed, but resembling Princess of Wales; Mr. Young, Edinburgh, second with Walburton Admirable; and Mr. McLeod third with Noblesse. For dishes of six Peaches, first, Mr. McLeod, Stirling, with Lord Palmerston of immense size; second, Mr. Patterson, Torrie Gardens; and third, Mr. Calderhead, both with Royal George, thirteen dishes being staged.

Nectarines.—Mr. E. George, gardener to J. W. Boord, Esq., Sussex, secured the first position with twelve fruits with Victoria; Mr. Gilbert, Burghley, closely following with the same variety, and Mr. Murray third. Seven dishes were staged. For dishes of six Nectarines.—These were poorly shown, a second prize going to Mr. Patterson.

Apricots were small, the best being Moorpark from Gilmerton Gardens. Plums also small, the prizes for three dishes going to Messrs. Short, Brunton, and Williamson, following in the order named.

PEARS AND APPLES.

Pears.—Six Jargonelles.—First, Mr. Short, Hummersknott, with very fine fruit; second, Mr. L. Dow, gardener to Sir David Baird, Bart., Newbyth—ten dishes. In the class for six Pears, in two sorts exclusive of Jargonelle, the first prize went to Mr. Fraser, Upper Hall, Ledbury, with Beurré d'Amanlis and Bon Chrétien. Collection of Pears, twelve sorts, two of each, ripe or unripe.—Mr. Austin, Ashton Court, was the premier exhibitor of excellent fruit, followed by Messrs. Williamson and McIndoe in the order named—six compe-

titors. As scarcely any of the Pears were ripe it is not necessary to give their names. In the class for six heaviest Pears Mr. Brotherton, Tynninghame Gardens, won the chief prize with Calabasse Grosse, the six fruits weighing 5 lbs. 13½ ozs.

Apples.—Collection of dessert Apples, two each of twelve varieties, ripe or unripe.—Mr. McIntosh, Paxton House, had the chief prize with generally green and late fruit—thirteen competitors. Mr. McIndoe staged an excellent collection of twelve baking Apples, and secured the position with which he is well acquainted—first. Lord Suffield was admirably shown by thirty exhibitors, the prizes going to Mr. John Blackie, Viewforth House, Leith; Mr. Brunton, Gilmerton, and Mr. Hunter, Lambton. Thirteen dishes of Stirling Castle were staged, the prizewinners being Mr. Edgar, gardener to James Cleland, Esq., Crossgar; Mr. Matheson, gardener to Wm. Tod, Esq., Glenesk, and Mr. Kay, gardener to Sir J. L. Foulis, Bart., all with moderate-sized fruit. Ecklinville Seedling was represented by a fine class of twenty dishes; the successful competitors being Mr. Gellatly, Mr. Sharp, Priorswood Gardens, Melrose, and Mr. Bowman, gardener to Lord Deas, Pittendreich, all staging excellent examples of this good Apple. Ribston Pippin Apples were green, and most of them small. Mr. Edgar staging the best, also the best Blenheim; Mr. Brunton having the best King of the Pippins. For a dish of the heaviest Apples Mr. Williamson was first with Warner's King; Mr. McIndoe second with Gloria Mundi; and Mr. Galloway, gardener to the Earl of Minto, third with Warner's King. A fine class.

Gooseberries were fresh and fine. Mr. Lornie, gardener to B. F. Hall, Esq., Dunglass, having the best. Red and White Currants were also good.

Beauty of Moray Apple exhibited by Mr. Webster was certificated as a free-bearing variety; the branches submitted being quite wreathed with fruit. It is below medium size, flattish, with rather prominent ribs, colour yellowish green. Messrs. J. Cheal & Sons, Crawley, Sussex, staged a very fine collection of fifty Apples and forty Pears, Brockworth Park being very fine; also excellent examples of their new Melons Paragon and Crawley Perfection. Messrs. James Veitch & Sons, Chelsea, staged 200 dishes—140 of Apples and 60 of Pears, all grown in their nursery at Southill. It was a magnificent display, and fully merited the extra prize that was awarded. An extra prize was also worthily granted to Messrs. Cheal. A handsome collection of about seventy varieties of Apples and Pears was also exhibited by Mr. Barron from the Royal Horticultural Society's Gardens at Chiswick. Some of the Apples were especially fine.

Exotic Fruits.—Mr. Muir, gardener to R. C. M. Talbot, Esq., Margam Park, South Wales, secured the chief prize with twenty dishes of the Citron family beautifully arranged with foliage of the trees and flowers—Orange blossom. Mr. McIndoe was second with Oranges, Lemons, Bananas, fruits of the Egg Plant, Capsicums, and Tomatoes. Why not Grapes? It was a very attractive collection, and merited its position.

Table of Fruit.—For the best table of fruit, 10 feet by 5 feet, there were only one exhibitor—Messrs. J. Boyd, Bayne, & Co., Prince's Street, who were awarded the first prize. The table contained a very good collection of fine samples, especially hardy fruits, such as Apples and Pears. Stirling Castle Apple was large and fine. The whole of the Pears being of French growth were large, and in every respect all that could be desired.

Vines in Pots.—Messrs. Lane easily won the prizes in both the Black and White classes with Foster's Seedling, bearing twenty bunches, some of them nearly a pound in weight, and fine berries; and Black Hamburg of the same number of bunches and quality—splendid examples of culture. In the Black class Mr. Gellatly was second with Mrs. Pince, bearing good bunches of fine well-coloured berries, and in the White class with Muscat of Alexandria bearing nine bunches.

Fruit Trees in Pots.—Mr. Murray, gardener to T. L. Learmouth, Esq., Polmont, was placed first with fruitful Pears and Plums, followed by Mr. McIntosh, Paxton House; the first especially being satisfactory examples of culture.

Much discussion has ensued on the question of comparing the fruit at this Show with the great displays of the past. Has the Show been equal to that of 1875? With the exception of the two marvellous bunches of that year the present show of Grapes is generally regarded as superior, as it is probably the most extensive that has ever been seen; but when we take the fruit as a whole and note the few yet fine Peaches, the small (in size and numbers) Nectarines, and not fine Plums, with the less fine Apricots and by no means extensive display of hardy fruits—when we consider all these facts, then it becomes difficult to say that the present Show, grand as it was, was the finest exhibition of fruit that has been seen in this country. We think we could name three that have excelled it, but not one as limited to the classes for the fruit of the Show—Grapes. An exhibition of this magnitude could not have been arranged in the limited time at disposal and the crowded building without some little inconveniences occurring. Until ten o'clock in the morning of the day of preparation the market was devoted to its ordinary purpose, the sale of vegetables; and it was only by active labour that the clearing and staging could be accomplished in readiness for the exhibits. On account of this pressure there was much shifting and moving of fruit especially, and waiting for positions by exhibitors. This was not, in the very nature of things, over-pleasant at the time; but during the night

all was reduced to order, and these—or at least those who obtained prizes—forgot the little difficulties of the night in the success of the morning.

PLANTS.

These generally were in good condition, both flowering and foliage, and on the whole the classes devoted to plants were well filled, and in some instances the competition was very keen. There can be no doubt that the Exhibition contained the finest display of plants ever seen in Scotland.

Stove and Greenhouse Plants.—In the class for ten stove and greenhouse plants, distinct, not more than five fine-foliage, there were eight entries. Mr. E. H. Letts, gardener to the Earl of Zetland, took the lead with grand well-flowered examples of *Allamanda Hendersonii*, *Ixora coccinea* fresh and well flowered, *Stephanotis floribunda* well bloomed, and a fresh healthy plant of *Erica Marnockiana*. The foliage plants in this collection were large and well-grown examples, including *Cycas revoluta* 7 or 8 feet in diameter, *Croton Weismannii* about the same size and well coloured, *Cycas circinalis* very fine, and a good *Croton Queen Victoria*. Mr. J. Patterson, gardener to J. Syme, Esq., Millbank, was a good second, having *Eucharis amazonica* 5 feet in diameter and well flowered, *Statice profusa*, *Erica Austiniana*, *E. retorta* major, *E. McNabiana*, and *E. Irbyana*, his best foliage plant being *Stevensoniana grandiflora*. Mr. A. Henderson, gardener to S. Clark, Esq., Paisley, was awarded the remaining prize, having a good *Cycas circinalis* and *Erica Marnockiana*. For six plants in flower Mr. J. Patterson took the lead, and staged really good plants of *Erica tricolor Wilsonii*, *E. Irbyana*, *Statice profusa*, and *Clerodendron Balfourianum*. Mr. A. Paul, 111, Gilmore Place, Edinburgh, was second with large well-flowered plants of *Clerodendron Balfourianum* and *Statice profusa*. Mr. J. Souza, gardener to Sir H. J. S. Stewart, Bart., first for a single specimen in flower with a wonderful plant of *Pancratium fragrans* having over a dozen flower spikes; Mr. J. Robertson, gardener to J. Still, Esq., Spring Bank, Stirling, second with a well-flowered *Lapageria rosea* on a trellis fully 7 feet high; Mr. J. Shearer, gardener to D. McGregor, Esq., third with a fair plant of the same variety. There were eleven entries.

In the nurserymen's class for twelve stove and greenhouse plants introduced since 1879 Messrs. Ireland & Thomson, Edinburgh, were the only exhibitors, and staged a very choice collection, including *Croton Archibaldii*, a well-coloured and effective variety; *C. Weismannii superba*, much denser in habit than the ordinary *C. Weismannii*. *Croton Holdsworthii* was also good, *Adiantum Victoria*, *Dracæna Wilsonii*, *Nepenthes Masteriana*, *N. Williamsii*, *Anthurium Waroqueanum*, *A. Veitchii*, and *Asparagus plumosus*.

Groups.—In the nurserymen's class for the best table of plants 30 feet by 6 feet for quality and effect there were four entries, which caused the Judges considerable difficulty. Their decision placed Messrs. Ireland & Thomson, and Messrs. Clark & Co., Carlisle, equal first, and the Horticultural Company (John Cowan), Garston Vineyard, Liverpool, third. This, however, gave much cause for complaint, the first-named being well to the fore, and staged a remarkable group of very fine plants. Those placed equal were certainly arranged lighter than those from the Vineyard, but were not of equal quality. These plants were arranged on tables about 2 feet 6 inches from the ground, and sloped gradually from the centre to the sides. The collection staged by Messrs. Ireland & Thomson contained *Nepenthes Henryana*, *N. superba*, *N. Outramiana*, *Sarracenia flava*, *Darlingtonia californica*, *Anthurium Veitchii* with grand foliage, *A. Andreanum* with fifteen flowers, *Croton Princess of Wales*, *C. Lord Chelmsford*, *Croton Thomsonii*, a grand new variety; *Cypripedium niveum*, *Saccolabium Blumei majus*, a good variety with two spikes; *Cypripedium Sedeni*, *Odontoglossum Alexandræ*, *Alocasia Thibautiana*, intermixed with Ferns, Palms, *Amaranthus tricolor*, *Nertera depressa*, small *Ixoras*, and Ferns for edging the group. Those from Messrs. Clark & Co. contained three rows of Palms down the centre, and small plants of *Crotons*, *Abutilons*, and *Cyperus alternifolius* grouped round them, with small *Crotons* rising out of a groundwork of small Ferns. The third-prize collection was similar, the style of the first-mentioned, and contained many well-grown comparatively new *Crotons*, *Dracenas*, Palms, and a number of small Orchids.

In the corresponding gardeners' and amateurs' class for a group 20 feet by 5 feet there were five entries. These were arranged on the opposite side of the Exhibition to the previous class. Mr. A. Paul, and Mr. J. Hammond, gardener to Sir Wilfrid Lawson, Bart., Brayton, Carlisle, were awarded equal first, the former for quality and the latter for effect. The first-mentioned contained a good number of Orchids, the best being *Odontoglossum Skinnerii*, *Cypripedium selligerum*, *C. Stonei*, *Oncidium incurvum*, *Saccolabium guttatum*, and a number of *Masdevallias*, intermixed with *Crotons*, Ferns, Palms, *Ixoras*, and others. Mr. Hammond's group was very light and effective, its only fault being rather too many *Crotons*. Mr. J. McIntyre, gardener to Mrs. Pease, Woodside, Darlington, was the remaining successful exhibitor, and staged a very creditable collection of small decorative plants.

Orchids.—The display of these plants was not large, but those exhibited were in good health, and very well flowered. Especially noteworthy was a plant of *Renanthera coccinea*, with large branching spikes of bloom, each spike having between sixty and seventy flowers fully expanded. The plant was growing in a remarkably small pot, and was not more than 4 feet high, having three stems. This plant was green and in luxuriant health, and did not present the appear-

ance of having been ripened in full sun to bloom it, as is practised by many. In the nurserymen's class for eight plants Messrs. Ireland and Thomson were the only competitors, and were awarded the first prize for healthy well-flowered plants of *Cypripedium longifolium*, with three spikes of bloom; *Phalænopsis amabilis*, one large spike; *Vanda tricolor*, and *Cattleya guttata*. In the corresponding gardeners' and amateurs' class for six plants Mr. A. Paul took the premier award with neat healthy well-flowered plants of *Odontoglossum grande* with fifteen flowers; *Saccolabium Blumei majus*, one large spike, good variety; *Cattleya Harrisoniæ*, *Miltonia spectabilis*, *Lælia elegans*, and a good *Vanda suavis*. Mr. A. Gow, gardener to Mr. McDonald, Woodlands, being a close second, having good *Lælia crispa*, *Odontoglossum Pescatoria*, *O. Alexandræ*, both good varieties; and *Masdevallia ignea* (Meadowbank variety). Mr. A. McGregor third, having a fair plant of *Oncidium macranthum*, *Cypripedium Lawrencianum*, and *Odontoglossum grande*. There were four entries. For three plants there were six competitors. Mr. J. Curror, gardener to G. Douglas, Esq., Eskbank, was well first with a grand form of *Miltonia spectabilis*, *Cattleya gigas*, one fine spike, and a grand plant of *Oncidium incurvum*. Mr. McGregor was placed second, his best plant being *Odontoglossum grande*; Mr. A. Paul third, with a very fair lot. For one plant, Mr. D. Paton, gardener to Mrs. Tait, Melrig, Galston, was well first with the grand plant of *Renanthera coccinea* before alluded to. Dr. Patterson, Bridge of Allan, second with a fine form of *Cattleya Dowiana*; the plant was not large, and bore one spike with two flowers. Mr. J. Curror was the remaining successful competitor.

Ferns.—In the nurserymen's class for six distinct sorts, excluding Tree Ferns, Messrs. Ireland & Thomson were the only exhibitors, and were awarded the first prize for good plants of *Adiantum cuneatum*, *A. formosum*, *A. Flemingii*, a grand plant; *Pteris serrulata cristata*, *Gleichenia rupestris*, and *Neottopteris australasica*. In the corresponding gardeners' and amateurs' class for six Mr. W. Anderson, gardener to P. Niel Fraser, Esq., was well ahead with the finest pan of *Goniophlebium subauriculatum* I have ever seen exhibited with fronds fully 8 to 12 feet long, with about two hundred fronds, and shown to advantage by being suspended from the gallery. *Lygodium scandens* was also very fine, as well as *Pteris serrulata cristata*. Mr. Souza was second, having a large plant of *Davallia Mooreana*; and Mr. S. Graham third with a grand plant nearly 4 feet through of *Davallia Tyermannii*. There were six entries. In the nurserymen's class for two Tree Ferns, stems not less than 4 feet high, Messrs. Dickson & Co. Waterloo Place, Edinburgh, took the lead with *Dicksonia antarctica*, the remaining four classes being devoted to gardeners and amateurs. For three *Gleichenias* Mr. A. Henderson, gardener to S. Clark, Esq., was first with very fine plants, and Mr. A. Paul second. For four *Adiantums* there were five entries, and the exhibits throughout were good. Mr. J. Curror took the lead, having a beautiful specimen of *A. gracillimum* and *A. farleyense*. Mr. C. Cumming was a very close second with equally good plants but slightly smaller. For one *Todea superba* there were four entries, all being good. The prizetakers were Messrs. A. W. Anderson, R. Greene, gardener to Miss Falconer, Falcon Hall, in the order as named.

Mr. Lyall, gardener to Sir A. Hope Pinkie, was first with six British Ferns, large specimens. Mr. A. Kerr, gardener to W. Scott Kerr, Esq., second with small but fresh plants. For twelve plants in 6-inch pots Mr. A. W. Anderson first with conspicuous plants of *Blechnum cristatum*, *Asplenium septentrionale*, and *A. lanceolatum microdon*; Mr. J. Cumming, gardener to Miss Ivory, second with small but equally neat little plants. In the class for three Filmy Ferns Mr. A. W. Anderson, 19, Pilrig Model Buildings, took the lead with *Trichomanes reniforme*, *T. radicans*, and *Hymenophyllum demissum*. There were eight entries for two pots or pans of *Lycopodiums*, and Mr. J. Cossar, gardener to G. F. Melville, Esq., took the lead with grand plants, and was followed closely by Mr. S. Graham.

Dracenas.—These were not numerously shown, but the plants staged were of good quality in the three classes devoted to them. Messrs. Ireland & Thomson were the only exhibitors in the nurserymen's class for six plants. The best were Rossi, very good; Barroni, *Salmonea*, *gigantea*, *amabilis*, and *Illustration*. In the corresponding gardeners' and amateurs' class for six plants in pots not less than 9 inches in diameter Mr. W. Pratt, gardener to Lord Hill, Hawkstone, Salop, was well ahead with neat, sturdy, well-coloured plants of *Robinsoniana*, *Berkleyi*, very fine; *Regina*, *Mooreana*, and a good specimen of *Anerleyensis*. Mr. A. Henderson second, having a good *Chelsoni* and *Denisonii*. There were seven entries in this class. The prizetakers for three plants in 6-inch pots were Messrs. G. Atkinson, gardener to T. Ford, Esq.; S. Graham, gardener to H. Rose, Esq.; and J. Robertson. Five entries.

Crotons.—These were generally good, especially those shown by Messrs. Ireland & Thomson in the nurserymen's class for six plants. The varieties were *fasciatus*, a conspicuous variety and well coloured; *Princess of Wales*, fair; *majesticus*, good; *Princ. of Wales*, very fine; *Queen Victoria*, and a grand plant of *Etna*. In the corresponding gardeners' and amateurs' class for four plants Mr. McIntyre won chief honours with a large specimen of *Andreanus*, *Weismannii* well coloured, *majesticus*, and *Queen Victoria*. Mr. J. Hammond followed, having a good *Weismannii* and *majesticus*. Mr. R. H. Reid third with much smaller but clean healthy young plants. For two plants Mr. G. Atkinson, gardener to F. Ford, Esq., first with *Weismannii* and *Disraeli*; Mr. Hammond second, and Mr. R. M. Reid third. There were four entries for one plant, Mr. A. Scott, gardener to Lord Elphin-

stone, first with a well-grown plant of *Weismannii*; Mr. Hammond second with *Queen Victoria*, and Mr. McGregor the remaining prize with *Disraeli*.

Fine-foilage Plants.—The prizes given for four plants were well contested, seven or eight competitors staging plants. Mr. J. Hammond, Brayton, took the lead with *Bonaparte juncea filamentosa*, *Croton majesticus*, and *Dasylyrion glaucum*. Mr. A. Henderson and Mr. R. M. Reid, gardener to D. Wright, Esq., Ravenswood, followed in the order as named.

Palms.—In the class for four Palms of sorts Mr. S. Graham took the lead with grand examples of *Latania borbonica* large and healthy, *Kentia Fosteriana*, and *Seaforthia elegans*; Mr. J. Hammond second with *Cocos Weddelliana* and a good plant of *Phoenix rupicola*.

Table Plants.—The competition in the two classes devoted to these plants were keen, some twenty exhibitors staging plants, and the whole were highly creditable to the exhibitors. The plants were arranged down the centre of the fruit table. In the nurserymen's class for twelve plants Mr. J. Samson, nurseryman, Kilmarnock, took the lead with grand even plants of *Dracena superba*, *D. elegans*, *C. otton interruptus*, *C. angustifolius*, *Geonoma gracilis*, *Pandanus Veitchei*, and *Aralia gracillima*; Messrs. Sutherland & Co., Victoria Nursery, Lenzie, a close second with similar plants. In the gardeners' and amateurs' class for six plants Mr. J. Gordon was first with a grand assortment of neat well-coloured plants of a very suitable size for the purpose for which they were shown, and were similar in variety to those mentioned above; Mr. W. Lowe, gardener to John Paton, Esq., being a good second; and Mr. McIndoe third with very even plants.

Ericas.—The plants shown in the classes devoted to these plants were very satisfactory, being in the best of health—fresh and profusely flowered considering the lateness of the season; they, however, were as good as could have been expected two months earlier. Mr. J. Patterson, gardener to J. Lyme, Esq., was well first with *E. obbata*, *tricolor Eppsii*, and *retorta major*; Mr. E. Boyes second, having a good *Marnockiana*; and Mr. A. Henderson third, having a very neat plant of the same variety. For one plant Mr. E. Boyes took the lead with *Marnockiana*; Mr. J. Smith, gardener to Miss Anderson, second with the same variety; and Mr. A. McGregor third with an equally large but not so well-flowered plant.

Liliums.—These were only of fair quality, but a number of competitors entered for the prizes given. Mr. S. Graham was well first with very fair plants, and Mr. A. Paul second. For one plant of *Lilium auratum* Messrs. G. M. Clure and W. Duncan, gardener to Mr. A. O. Riddell, Craig Lee, were the prizetakers in the order as named.

Zonal Pelargoniums.—The competition in the classes devoted to these were keen, and the plants exhibited were in fair condition and moderately well bloomed with trusses of a large size. Mr. J. Matheson, gardener to W. Tod, Esq., Glenesk, took the lead and staged a good plant of John Gibbons with very large trusses of flower. Mr. J. Cumming was a good second, having larger but not such well-bloomed examples. Mr. J. Wood, gardener to Dr. Hutchinson, obtained the remaining prize. There were five entries in the class for four variegated varieties. Mr. S. Graham was placed first with well-grown plants which were well coloured; Mr. R. Johnston second with very neat plants, and Mr. J. Souza third.

Fuchsias.—Some of the plants shown in the classes devoted to these plants were large and profusely flowered. Mr. J. Ball, gardener to W. J. Menzies, Esq., Canada House, was first, followed closely by Mr. A. Clark and Mr. A. Henderson. For one plant the last-named exhibitor was again first.

Chrysanthemums were very well represented, and the competition was good and keen. For four summer-flowering varieties Mr. G. M. Turc, gardener to J. Milne, Esq., took the lead with well-flowered plants fully 4 feet in diameter; Mr. Smith, gardener J. T. Wilson, Esq., second; and Mr. Pearson, gardener to Lady Dundas, Beechwood, third.

Begonias.—These were not numerously shown, as the schedule only provided one class, which brought a collection from Messrs. Ireland and Thomson. The six plants staged by them were very creditable, of fair size, and really well flowered, the best being *Sedeni*, *Exquisite*, *Kallista*, *Oriflamme*, and *Vesuvius*.

Cockscombs were well shown, the combs being of large size and of superior shape. Messrs. T. Brown, gardener to C. McKirdy, Esq., Birkewood, and R. M. Reid, were the principal prizetakers in the order as named.

Vallota purpurea.—The schedule provided one class for this fine autumn-flowering plant, which brought six competitors, who staged remarkably fine specimens. The first plant was a remarkable specimen, having over thirty spikes of bloom. The premier award was obtained by Mr. R. Grossart, gardener to J. Buchanan, Esq., Eswald Road; the second-prize plant being very little behind, and was staged by Mr. J. McDonald, gardener to J. Younger, Esq.; and the third by Mr. R. Johnstone, gardener to F. Gibson, Esq., Woolmet.

Conifers were remarkably fine in the class provided for six plants in pots or tubs. The Lawson Seed Company took the lead with very large specimens in luxuriant health, and the golden varieties of *Yews* and *Retinosporas* of good colour. Messrs. Ireland & Thomson followed with rather smaller, but equally good plants in other respects.

CUT FLOWERS.

The classes devoted to these exhibits were well filled, and on the whole of superior quality. The Roses were remarkably fine considering the lateness of the season, those from Ireland being very far ahead, and many of the blooms were as good as could be expected much earlier in the season. For twenty-four distinct sorts Mr. H. Dickson, Belmont Nursery, Belfast, won with blooms of a large size, fresh, and of good colour; Mr. J. Smith, Stranraer, being placed second. In the gardeners' and amateurs' class for twelve blooms Mr. A. Hill Gray, East Ferry, was placed first with a very fair box, and Mr. J. Kidd, Huntley Place, second.

Gladioli on the whole were very fine, especially those shown in the nurserymen's class for thirty spikes, which was won by Mr. A. E. Campbell. A few of the very best were Horace Vernet, Ondine, Sylvia, Orpheus, Camille, and A. Brongniart. Mr. J. Service, Dumfries, was second with a fair lot, but not so neat as the former; and Messrs. Harkness & Sons third. In the corresponding amateurs' and gardeners' class for eighteen Messrs. J. Grey, Taylor, and A. Kemp were the prizetakers. Messrs. W. Kilgour, H. Sime, and J. Bald were the successful competitors for twelve spikes. Mr. Kilgour's collection of Gladioli was especially fine, and such handsome spikes are never seen in the south except from Messrs. Kelway and Son's nursery. Hollyhocks were only fair, and the prizes were withheld in the nurserymen's class for eleven spikes, while in the gardeners' and amateurs' class for seven spikes Messrs. D. Macfarlane, gardener to Sir R. Ray, Bart., J. Souza, and R. Johnstone were the successful exhibitors. For five spikes Messrs. P. Robertson, W. Henderson, and J. H. Campbell, Millfield, obtained the awards in the order as named.

Dahlias were well shown, and of the finest quality. In the nurserymen's class for twenty-four blooms Messrs. Harkness & Sons, Bedale, were first with grand blooms of James Cocker, Criterion, J. C. Reid, John Wyatt, Rev. Dr. Moffatt, and Rev. G. Goodday. Messrs. Downie & Laird followed closely with a very fine even assortment. In the gardeners' and amateurs' class for eighteen the prizetakers were Messrs. T. Hogg, gardener to T. Gordon, Esq., first, with a very good lot; Mr. W. Veitch, The Cemetery, Carlisle, second; and Mr. N. Glass, gardener to J. C. Bollon, Esq., third. Messrs. Simpson, Wyton, J. Pearson, and G. Wybar were successful for twelve blooms, all staging well. For twelve fancy Dahlias Messrs. W. Veitch, J. Stewart, and N. Glass obtained the awards. Messrs. Downie & Laird, Edinburgh, and J. Cocker & Sons, Sunnybank, Aberdeen, were successful in the nurserymen's class for twelve fancies. For twelve Phloxes Messrs. Downie & Laird took the lead, followed by Messrs. Dickson & Co., Edinburgh. The first-named exhibitor was also first for Pentstemons. For twelve hardy annuals Messrs. W. Henderson and H. Campbell were the principal prizetakers. Messrs. J. Menzies and J. Stewart were the leading prizetakers for Aster blooms, which need no further comment. Messrs. Grosset, J. Bald, and J. Sutherland were the leading exhibitors for bouquets.

TABLE DECORATIONS.

The prizes offered for a table 10 feet by 4½ feet, completely laid out for twelve persons and arranged so as to show the best means of utilising fruit and flowers in its adornment, brought only two competitors. Messrs. Todd & Co., Edinburgh, were adjudged the premier award, and Mr. James Horne, Polmont House, the second, but neither of the tables were elegantly or tastefully furnished. The first-prize table was too heavy in the centre for the size of the table, a small *Cocos* in the centre being plunged in a raised rather square bank of *Lycopodium*, from which rose nine small Palms about 6 to 8 inches above the moss. Quantities of *Adiantum cuneatum* fronds were dotted amongst the moss, as well as *Eucharis*, *Lapageria alba*, and other suitable flowers. From the top of the bank arched tastefully a number of spikes of *Odontoglossum Alexandræ*, and at each end of the table a vase of cut flowers and Ferns. Button-hole bouquets were inserted in each napkin. The fruit consisted of black and white Grapes, Plums, Figs, Melon, and a Pine. The arrangement would have looked well on a table double the size. The second-prize table was much the neater to our taste, and numbers capable of judging shared with us this opinion. A very different system was followed, in the centre being a small *Croton*, which was elevated in a suitable vase, and the base edged with moss laid on the cloth, and a number of scarlet berries. A similar arrangement with Ferns, flowers, and foliage *Begonias* was placed round the fruit, and other vases and dishes on the table. The material used was not so choice as on the first-prize table, but the arrangement was lighter and on the whole neater. Mr. Jenkinson, 10, Prince's Street, Edinburgh, also contributed a table laid out for eighteen persons, not for competition, which was good but rather formal.

VEGETABLES.

These were arranged on a side table placed along one end and up the side of the market place. They were admirably represented, an inferior dish being the exception, and high quality the rule. Taking the classes in the order of the prize list, the first is the basket of salads, of which six lots were shown, Mr. J. Muir, Margam, South Wales, being placed first with a well-arranged basket of all kinds of salads of very fine quality; Mr. Smith was second, and Mr. Bowman, Pittendreich, third, but in style of arranging and quality these were far behind the first-prize basket. Collections of vege-

tables numbered fifteen. Here again Mr. Muir was first with twelve splendid dishes of the following:—Defiance Celery, Pettigrew's Cardiff Castle Cucumber, Crossling's Glamorgan Tomato, Telephone Pea, Webb's Banbury Onion, Suttons' King of the Cauliflowers, Hollow Crown Parsnip, Snowball Turnip, Manhattan Potato, Carters' Champion Runner Bean, Muir's New Hybrid Marrow, and Intermediate Carrot—altogether a grand lot, not an inferior dish being visible in this tastefully displayed collection, each dish having its separate round basket. The second prize was awarded to Mr. McBean, Craigends, Renfrew; and the third to Mr. Brown, Abercorn, Perth, with highly creditable collections, their Leeks being remarkably good, as they also were in many of the other stands.

For twelve Onions there were twenty-seven competitors, Mr. Porter, North Berwick, being first; and Mr. J. Pringle, Edinburgh, second, with well-developed round bulbs. Fourteen lots of six Leeks were staged. First, Mr. A. Thomson, butcher, Kirkintilloch, with fine specimens as thick as one's arm for the length of 18 inches; second, Mr. Glass, Colbrook, with specimens only slightly inferior to the others.

Of twelve Tomatoes there were fourteen lots. First Mr. J. Ramsey, Fife, with fine specimens of the Drumlanrig variety, which weighed about 1 lb. each; second Mr. Mackinnon, Scone Palace, Perth, with the same variety, which is both good and beautiful.

For the class for four Savoys there were twenty-two entries. First Mr. R. Blair, Craigie House, with very large heads; second Mr. Thomson, Edinburgh, with samples of the same gigantic description; quality was left in the background here. In the four Cauliflowers' class seventeen exhibitors staged. First Mr. Gourling, Loanhead; second Mr. Bowman, both lots being good samples of Veitch's Autumn Giant. There were ten entries of four stalks of Brussels Sprouts. First Mr. C. Smith; second Mr. Curror, Eskbank, but those and all others were far from maturity. Four stalks of Celery—first Mr. Thomas Hogg, Cathcart; second Mr. Souza, both having fine samples of a red variety.

Ten braces of Cucumbers were staged, first Mr. D. Ross, St. Martin's; second Mr. Brown, Abercorn, the first with Telegraph and the second with Pettigrew's Cardiff Castle. Fifty pods of Peas, eighteen lots, first Mr. Williamson with Veitch's Perfection; second Mr. Forester, Ralemont, with good Telephones. Fifty French Beans, twenty-eight lots, first Mr. Hall, Kelso; second Mr. McLean, Maidstone. Potatoes were very numerous shown, and the quality as a rule was high.

Twenty-two collections of twelve varieties were shown. Mr. J. Culton, Castle Douglas, was first with fine clean even samples of the following varieties:—Schoolmaster, Climax, Snowflake, Beauty of Kent, Salmon Kidney, Scotch Queen, Porter's Excelsior, Mrs. Langtry, Queen of Whites, Challenger, and Beauty of Hebron. Mr. Blair was second, and Mr. Robertson, Jedburgh, third. In the class for six varieties Mr. Potter was first, Mr. Mackinnon, Melville Castle, Dalkeith, second, and Mr. Brewer, Ormiston, third with fine clean samples.

MISCELLANEOUS EXHIBITS.

These were very numerous and varied, and added materially to the effective appearance of the Exhibition. Mr. B. S. Williams, Victoria and Paradise Nursery, Upper Holloway, London, contributed a very fine group of choice stove and greenhouse flowering and foliage plants, including many Orchids, Ferns, and Palms all tastefully arranged together, a few of the most conspicuous being Begonia Williamsii, a fine white variety; Nepenthes superba, N. coccinea, Cattleya crispa superba, fine; Delabachia rupestris, grand table plant; Lælia elegans var. prasiata, Vanda tricolor, insignis, and many others. Messrs. J. Dickson & Co., Inverleith Nursery, Edinburgh, a similar group of plants, including many Zonal and Fancy Pelargoniums very tastefully arranged on a long narrow table. The Horticultural Company (John Cowan), Garston, Liverpool, had a similar group, but not quite such a large number of plants, also some good pot Vines. Messrs. W. Gordon & Sons, Coltrbridge Nursery, had a fine group, including Tea Roses, Gardenias in small pots, Ferns, which largely predominated, intermixed with Rhodanthe Manglesii, which gave to the whole a very pretty effect. Messrs. T. Methven & Sons, Edinburgh, contributed a tastefully arranged table of plants, including many French and Fancy Pelargoniums; Messrs. Cunningham & Fraser Conifers, amongst which were associated Statice profusa and a number of an early white-flowering Chrysanthemum; Messrs. Dickson & Co., Waterloo Place, had a large collection of plants, with cut flowers and fruit trees in pots bearing fruit, out of which rose a number of large Palms and Tree Ferns, the effect being very striking. Messrs. Ireland and Thomson contributed cut Roses, Reses in pots, Conifers, intermixed with Hydrangea paniculata grandiflora and baskets of Heaths. This firm also had several other small exhibits. The Lawson Company, Edinburgh, exhibited a large number of choice Conifers in pots, which filled two large corners in the Exhibition, and were very effective. Messrs. Little & Ballantyne, Carlisle, had a remarkably fine group of choice Conifers in large pots and tubs, amongst them being a fine specimen of Pinus Balfouriana, said to be the largest specimen of this variety in the country. Messrs. Drummond Bros. contributed plants, wreaths, and bouquets. Messrs. Brotherstone and Munroe, Abercorn Nursery, Chrysanthemums in flower in small pots, and herbaceous cut flowers. Mr. King, gardener to G. H. Potts, Esq., staged a table of herbaceous and alpine plants in pots. Messrs. J. and A. P. Currie a large collection of London and Russell's vases suitable for Ferns. Messrs. Laing & Co., Forest Hill, London, sent a

large collection of single and double Begonia blooms, which were much admired. Mr. J. Forbes exhibited boxes of Pansies, Verbenas, and single Dahlias. Mr. T. Ware, Hale Farm, Tottenham, London, had a very large collection of single Dahlias, which included a pretty variety named Union Jack. Messrs. Downie & Laird sent a similar collection, also a number of bouquet kinds. Messrs. Roger McClelland & Co., Newry, Ireland, a table of curious plants, including a remarkable specimen of Trichinium Manglesii, with about thirty of its curious heads of bloom. From the Botanic Gardens also numbers of large Palms, Nepenthes, and many other interesting plants were sent.

Populus alba Bolleana, a strong-growing sort with large leaves, was exhibited by Messrs. Dickson & Co., Waterloo Place, Edinburgh, also Coleuses with wonderful foliage, one Laurence Goldring, 6 by 5 inches, yellow, broadly banded with red. Mr. Ware, Tottenham, exhibited a collection of single Dahlias, and Messrs. Ireland and Thomson several boxes of fresh Roses.

Croton Thomsoni.—Messrs. Ireland & Thomson showed a number of young plants of this fine distinct Croton, for which a first-class certificate was awarded. This variety has leaves about 1 foot in length and about 2 inches wide, and are of a true golden colour slightly dotted with green. From the appearance of the plants exhibited this grand Croton will colour well in a very small state, and in consequence prove a useful variety for decoration as well as exhibition. They also exhibited a seedling named Sir Garnet Wolseley, which resembles C. Disraeli, but appears to colour much better.

Everything was ready for the Judges at 6 A.M.; and previous to opening the Show to the public the excellent and appropriate custom of allowing gardeners to have a private view for a shilling each proved by the numbers who entered the Show how this privilege is appreciated. The Exhibition was opened to the public by the Lord Provost.

On the evening of the Show a grand banquet was held at the Waterloo Hotel under the presidency of Bailie Hall, supported by Canon Hole and Messrs. W. Thomson and Methven. The Rev. Canon was, as usual, most entertaining, and received the customary ovation. Mr. Thomson was equally cheered at the close of his excellent speech—historical, practical, and suggestive; and Mr. D. T. Fish concluded an extraordinary address by making a Bishop—the Bishop of Horticulture. The genial Canon rose to acknowledge his translation, and with befitting modesty covered his face with his napkin, but when he unveiled he did not appear to have been weeping. Other eloquent speeches brought to a close a most enjoyable evening. The unfailing courtesy and open-handed hospitality of our Scottish friends have been just what might have been expected, hearty and genuine; and many hundreds of visitors have greatly enjoyed their brief sojourn in the Queen of the North, beautiful Edinburgh.

ASPARAGUS AND GLOBE ARTICHOKE.

Asparagus.—This has been much blown about this season. The growths from each root were tied to a stake early in the season, but in many cases this was not strong enough to resist the gale, and the stems were broken. This check to the main stems has caused many of the young buds to start into growth, and good bundles of grass might be cut now; but the stems have been fixed again, and will remain so until they have ripened, when it is hoped the roots and crowns may be no worse for their rough treatment. Many do not stake their Asparagus stems, but allow them to be blown any way or lie down, so as to completely hide the surface of the soil, consequently the roots have no chance of maturing. Plenty of space between the roots and branches is a certain way of insuring a good supply of strong Asparagus.

Globe Artichokes have been unusually good this season; last winter being mild was much in their favour. We cut the first heads in April, and we have scores coming on yet. The secret of inducing them to produce so long is to cut all the heads off before they become too old. When they are allowed to flower the stems wither and cease to emit side growths. This removing of the old produce is necessary to prolong the bearing of all vegetables, and ought to be generally practised.—M. M.

FOSTER'S SEEDLING GRAPE.

THE variety is well known to most cultivators as a useful white Grape, but I think that it is not so generally cultivated as it ought to be, and that no collection is complete without it. Few Vines have a stronger constitution or greater powers of bearing heavy crops, and when well grown the bunches are large, well set, and of excellent shape. The berries are large, too, and when fully ripe are a most beautiful amber colour.

I have heard complaints made by some that it was deficient in flavour, and at best only a third-rate Grape. My experience of it is quite the reverse. With me it is sweet, richly flavoured, and of first-rate quality. The bunches, if properly thinned, are compact, the berries are firm and not easily bruised or broken, and can be

sent long distances without the slightest injury if properly packed. To add to its other good qualities, the bunches hang for a long time before shrivelling.

As to its fruitfulness, perhaps it would interest some of your readers to know the results obtained from Vines that were struck from buds here in the spring of 1880, and planted out permanently 4 feet apart in May of the same year. The house in which they are planted in a large span-roofed vinery, some 60 feet long, 24 feet wide, and about 20 feet high, divided in the centre by a glass partition.

The first year the Vines grew to the top of the house, made strong canes, and ripened them thoroughly to the core. In the autumn they were pruned to within 5 feet of the ground; the wood was as hard as a bone, and scarcely any pith discernible. In the following spring, 1881, the Vines were a long time in starting, and broke weakly at first, but after a little they advanced vigorously, and three canes were allowed to grow from each to the top of the house. My idea for allowing the three canes to grow was that they would not be so strong if I only left two—the number required to fill the house—and that they would break better the following year on that account. By the autumn they made very strong canes again, and ripened the wood well. At pruning time one of the canes on each Vine was cut off close to the main stem, except the end Vine, which required the three to fill the space. The remaining canes were allowed to retain from 5 to 6 feet each of young wood. In the spring of the present year the Vines broke well, showing from two to three large bunches on each shoot. These were reduced to eight or nine bunches to each Vine, which they ripened and finished off thoroughly, many of the bunches weighing 3 and 4 lbs. each, and none of them less than 2 lbs. The Vines have made strong canes this season, which are thoroughly ripened and as brown as a nut, and none of them seems the least weakened or exhausted by finishing their heavy crop.

In conclusion I might say, a dry border, and a cool and dry atmosphere is recommended by some noted Grape-growers when the fruit is ripe. For my own part I prefer to water the borders when they need it, and I never allow them to get dry at any time. The house is regularly damped down in good weather whether the fruit is ripe or not. It is seldom that ever I have a decayed berry in the house, and they do not shrivel up so fast under this treatment. The leaves keep much longer green and healthy than they do when treated otherwise.—A. PETTIGREW, *Castle Gardens, Cardiff*.

[A fine well-shaped 4 lb. bunch of Foster's Seedling accompanied this communication. The berries are full-sized, admirably finished, and the best flavoured examples of this variety we have yet tasted.]



ON the opening day of the INTERNATIONAL EXHIBITION that was held at Edinburgh last week (which is fully reported in our present issue) the weather was very fine, and we learn that upwards of 15,000 visitors attended the Show. On the second day, which was very wet, especially in the afternoon, when the rain fell heavily and continuously, about the same number visited the Exhibition. The charge for admission during the whole of the first day was 1s., the second day 6d., and the amount received during the two days was about £1060, which is in excess of the amount derived from the great show of 1875, when the prices for admission were higher.

— ON the second day of the above Show Messrs. Smith and Dewar sold by auction at their rooms in George Street, Edinburgh, collections of specimen ORCHIDS, the property of Dr. Alexander Paterson, Bridge of Allan, and of Mr. F. Sander, St. Albans. There was a large attendance of buyers, including some from the Continent, and good prices were realised. In Dr. Paterson's collection was a magnificent specimen of *Cattleya labiata* Warneri, measuring 27 inches across, with seventy-nine bulbs, sixty of which had leaves, sold for 45 guineas. This plant was in the first collection of Orchids belonging to the late Provost Russel of May-

field. The following are among the highest prices obtained for plants in this lot:—*Cattleya labiata*, 39 guineas; *C. Trianae* Symei, ten bulbs, all with leaves, 39 guineas; *Dendrobium thysiflorum* Walkerianum, 37 guineas; *Aerides Fieldingii*, 25 guineas; *C. Mendeli*, 27 guineas; *Laelia anceps* Barkeri, 26 guineas; *Vanda tricolor* Patersonii, 21, 16, 14, 13, and 10 guineas; *Vanda suavis*, 21, 19, and 16 guineas; *Laelia superbiens*, 20 guineas; *Anthurium Schertzerianum*, 20 guineas; *Angraecum sesquipedale*, 18 guineas; *Aerides suavis*, 17 and 11 guineas; *Odontoglossum vexillarium*, 15 guineas; *Epidendrum prismatocarpum*, 11 guineas; and *Chysis bractescens*, 10 guineas. The proceeds of the sale amounted, we believe, to about £800—a wonderful result when it is considered that the plants were grown in three small houses not averaging more than 20 feet long and 12 feet wide, and were merely duplicate plants, removed to afford space to the smaller and remarkably healthy specimens with which the houses are quite sufficiently filled now. Thus Orchid-growing, besides being a delightful and fascinating pursuit, is also profitable when carried out intelligently and well. Dr. Paterson employs no gardener, but pots and attends to the plants himself as agreeable recreation, a woman being engaged to keep them clean. Clean they certainly are and healthy, and, as the owner avers, are more easily grown than greenhouse plants. We shall probably be able to publish more relative to Dr. Paterson's collection and garden generally on a future occasion.

— MR. E. S. DODWELL, Stanley Road, Oxford, being unable from ill health to remain in active business, announces that he intends devoting himself entirely to the cultivation of the CARNATION AND PICOTEE. He deeply feels the kindness and consideration shown to him in former years, and in offering the present selection of fine seedlings to his friends and fellow-lovers of floriculture he refers with proud satisfaction to the high position the varieties raised by him have already taken—a position he confidently believes which will be sustained and enhanced by those now offered. The complete set will be sent for £4 4s., or twelve pairs, Mr. Dodwell's selection, for 50s. All transactions cash. Post orders are requested to be made payable at the General Post Office, Oxford. Cheques crossed "London and County Bank, Oxford." Purchasers of quantities will be very liberally dealt with. Plants ready from the first week in October. A priced list of the varieties is issued.

— MESSRS. OSBORN & SONS, The Sunbury Nurseries, S.W., forward us sample of labels made of a patent material called LINCRUSTA, resembling indiarubber which they state is "impervious to wet, frost, or any kind of weather. A piece of the material has been exposed now for about two years, and is still intact. They can be produced at 4s. per hundred, showing the names in relief, and in the various forms of hanging labels." They appear to be adapted for the purpose; the names being shown in relief are easily read; and if they prove really durable their utility cannot be too highly estimated.

— "B. E." writes respecting SCHIZANTHUSES:—"It is not yet too late to sow a few seeds of *Schizanthus pinnatus*, *S. retusus*, *S. retusus alba*, &c., for spring decoration. The seed should be sown in pots or pans, placed in a cold frame, and kept close for a few days until the seedlings appear; afterwards free ventilation is needed. The plants will be ready to prick off in about a week or ten days after they appear. Prick them singly into thumb pots and pot on as they require it, the final shift being into 5 or 6-inch pots. Winter the plants in a dry pit or house free from frost. Treated in this way *Schizanthus* are extremely useful for spring work. Sweet Scabious, Cornflower (*Centaurea Cyanus*) treated the same way are also very useful."

— WE are desired to state that at the recent PRESTON SHOW the only first-prize silver medal given for seeds was awarded to

Messrs. Sutton & Sons, Reading. Messrs. Primrose & Co., Sheffield, also state that the greenhouses glazed on the Eclipse system exhibited by them were highly commended by the Judges.

— MR. KIRK, of The Gardens, Norwood, Alloa, N.B., complains to us that in the report of the Edinburgh Show in a contemporary he is spoken of "as a new competitor," and requests us to correct this in our "first number." For the last six or seven years Mr. Kirk has been a constant exhibitor, and in our pages his name has frequently appeared as such; notably, on September 26th, 1878, we find the following—"Mr. Kirk has taken good prizes in Scotland this year, and it redounds much to his credit as a cultivator that all the Grapes he has exhibited have been grown in a house 30 feet long." Mr. Kirk was then gardener to Mrs. McKie, Castle Douglas.

— WRITING respecting the VAGARIES OF FLOWERING PLANTS, "G. O. S." observes:—"I have a Cyclamen in my open garden unprotected. Three years ago it flowered freely in March, the year after it was planted out. For two years it has not bloomed at all; but this year the last week of August it has thrown up a very pretty head of flowers. Some Primulas which would have bloomed in spring, but were injured by snails, are now flowering, and in a neighbour's garden the Gentianella is in bloom."

— MESSRS. JAMES CARTER & Co., High Holborn, announce that they will shortly send out the scarlet-flowered CLEMATIS COCCINEA, a very distinct and rare species of the *C. tubulosa* type. They have issued a coloured plate, which fairly represents the characters of the species, a single flower of the full size being very truthfully depicted. The species is not, however, as they state, unknown in this country, as it has been in cultivation at least ten years.

— A CHIPPENHAM correspondent writes in reference to the FRUIT CROP:—"The Apples, save in very sheltered gardens, are few, almost *nil*, also those few are blighted, spotted, and misshapen. I have no crop except on the Ecklinville Seedling trees; these are many and fine, and altogether good. Peaches are absolutely flavourless."

— MR. GEORGE RUDD, Undercliffe, Bradford, Yorkshire, sends us some blooms of the WHITE CLOVE CARNATION VIRGO, which has been in cultivation several years, and is justly esteemed for the excellent form and purity of the white rounded petals; in fact it is equally as good as the white Clove Carnation we recently noticed in these columns.

— MESSRS. STUART & MEIN, Kelso, send us some fine blooms of their STRIPED FRENCH MARIGOLDS, the excellence of which indicate a thoroughly good strain. The blooms are of moderate size but very full, and most richly coloured with orange and maroon.

THE SUNFLOWER.

FANCY verily has strange freaks and plays odd tricks. We can understand how she (for Fancy must be a lady) may alter dresses, blowing out or collapsing skirts as she chooses; now putting out something really graceful, and bringing in something by all the laws of art utterly hideous. But can she, does she, dare she bring in and bring out a flower, making a flower the rage? To a Peter Bell "a Primrose by a river's brim" may be only a "yellow Primrose" and nothing more, but surely educated and refined minds ought not to be influenced by fashion in regard to that "thing of beauty" a flower, "that thing of beauty and joy for ever."

However, so it is, and so it has been, and will be no doubt to the end of time. Let the flower at the head of this article bear witness. Until a year or two since in the garden of some very out-of-the-way farmhouse you might have seen uprising by a wall a Sunflower or two; and my lady or miss driving past, if they could see such vulgar things, would have said in scorn, "What horrid

staring things those are!" They would not have called them flowers. But now Sunflowers are in bonnets; Sunflowers are in the hand, or pinned on the dress, or are laid on the book board at church by hands wearing No. 6, or even dainty No. 5½ gloves. Enter houses, there amid some pretty white fluffy stuff in the drawing-room hearth are Sunflowers, larger higher up; while on the hearthstone itself lie a perfect flooring of little Sunflowers like shells on the seashore; while on brackets around in some queer, dingy, ill-shaped, but æsthetic-coloured bit of crockery stands up a Sunflower.

In modern books on gardening, published, say, between the years 1856 and 1876, the very name Sunflower does not occur. The flower had died out, and its name ceased to be printed—nay, if it had become spoken of at all it was as an agricultural plant. I have searched through twenty volumes of this periodical, and find it mentioned once or twice as affording by its dried seeds good food for fowls, and that it gave a gloss to their plumage. In so recent a number as that for September 2nd, 1875, there is an answer to a query in these words to one "H. W."—"We presume you wish to cultivate the Sunflower for its seeds." Hark ye to this, O ye æsthetic people, wild disciples of Mr. Oscar Wilde! "These are to be sown early, the beginning of April being most desirable, and the crop will be fit to harvest" (only the seeds thought of) "at the close of August or early in September. Drills 30 inches apart should be drawn, and the seeds disposed evenly or drilled in about an inch deep. The plants should be kept clean and thinned to 18 inches distance apart." All this from a purely agricultural or poultry view. Then there is a quotation in the number for September 19th, 1872, to the effect that, according to the "Argentine Republic," Sunflowers are strongly recommended because the flowers afford the best material for wax and the best honey; the petals yield a valuable dye; the seeds give 50 per cent. of oil, excellent for cooking and illuminating purposes, while they are also a superior food for poultry and for cows, increasing the flow of milk. The bottom of the calyx may be used for food in the same way as the Artichoke, which it closely resembles. The leaves may be used as food for animals, or made into good smoking tobacco; while the bark affords material for the manufacture of paper. All these very practical uses, but decidedly not æsthetic.

Then there is another answer to a query to "A CONSTANT READER" in vol. xxv., some nine years ago, in which the Sunflower is described as having the power to purify the air—that its leaves make excellent fodder, and the stem, being rich in saltpetre and potash, makes good fuel, and the seeds are good for fowls. Some wise man, if I remember aright, advocated Sunflowers being grown solely for fuel. Methinks I hear some æsthetic damsel exclaim to her beloved flower, "Oh! to what base uses thou mayest come." Still the fact remains, that until quite recently the floral beauty of this high-growing plant was absolutely ignored.

It was always a beautiful flower, though its charms have been unnoticed so long, and now it is regarded favourably in a laughably exaggerated sense.

Let me next trace a little the history of the Sunflower as connected with English floriculture. John Parkinson, an apothecary of the sixteenth century, sufficiently distinguished to be employed in that capacity, mentions the Sunflower among his list in a chapter entitled, "Of the Nature and Names of Divers Outlandish Flowers," and his directions in regard to raising the Sunflower are as follows:—"It requires to be raised early in a hotbed, or they never perfect their seed, but in very hot summers;" upon which Mr. Johnson makes this remark—"Either these plants have changed their habit or our climate is much ameliorated." But among writers I have come across, Gerard, A.D. 1597, writes in his "Herbal" most fully of the Sunflower. In a pretty, taking, old-fashioned way he speaks of "the Flower of the Sun or the Marigold of Peru," dividing it into two sorts: No. 1, Flos Solis major, and No. 2, Flos Solis minor. Of the former he says, "The Indian Sun or the Golden Flower of Peru is of such stature and tallness that in summer, being sown of a seed in April, it hath risen up to the height of 14 feet in my garden." This giant sort appears to have produced but one flower of "the size of 16 inches across." The stalk was the bigness of a man's arm. Gerard prettily and accurately says, "The middle part of the flower is made as it were of unshorn velvet, or some curious cloth wrought with the needle, which brave work, if you mark it well, it seemeth to be an innumerable sort of small flowers resembling the nozzle of a candlestick broken from the foot thereof."

Of the Flos Solis minor Gerard says that it was altogether lower and the leaves more jagged and very few in number; that the flower is smaller, and I infer there were more than one. "The thrummed middle part is blacker than the last described."

To come now to the present time. In cottage gardens, unin-

fluenced by importations of improved seed, the sort most common is the tall one with one large flower. In other gardens there are to be found tall ones somewhat improved, and lesser ones. The general division after a reference to height is dark-centred and light or brown-centred, the darker as a rule being the smaller. People differ as to their liking for dark-centred and light-centred. I own I prefer the latter; I think the colours, though less contrasted, are purer, clearer, and brighter. But there are improved varieties; these are from seeds procured from the larger nurseries. They are not more than 4 feet in height, stout-stemmed and strong. The first centre flower is decidedly large, but unlike the old tall variety is not the only flower, but from side branches come other flowers; perhaps six, eight, or even ten may be seen in bloom at once. These improved sorts are both dark-centred and light or yellow-centred, and these are flowers worthy to be grown at the back of a border in any garden however large or aristocratic, and are in every way superior to the old varieties. There is yet another sort to be had—the double, which comes direct to us from Texas; the seed not ripening in this country, or, if it does, producing a very inferior small flower. The plants are tall, and have only one flower each, quite double, and of course without the usual centre. At the best they are a sort of coarse-handsome, at the worst they are poor in the extreme.

The revival of these flowers in their improved condition is a gain to gardening and gardens. Giving them a very high place as flowers is absurd. They deserve a better use than their ancestors of forty years back, which were planted to hide an ugly old wall or a pigstye. The Sunflower mania is owing quite as much to the farce called "Patience," intended to ridicule the æsthetic movement, as to the æsthetic movement itself.

Let me transcribe one little passage more from old Gerard. "The buds before they be flowered may be boiled and eaten with butter, vinegar, and pepper." "Oh, fie!" an æsthetic would say. "Boiled! I scream, I faint! Boil and eat what I desire to live up to!" In conclusion I would say, Only cultivate the improved varieties, and plant them in suitable situations. They are handsome flowers and deserve to be grown, but not in hundreds, anywhere.—WILTSHIRE RECTOR.

POTATO WHITE BEAUTY OF HEBRON.

BEAUTY OF HEBRON has now proved itself to be a most valuable early market Potato, as in produce it is quite equal to the Early Rose, whilst in colour, shape, and precocity it is decidedly an advance on that variety. A crop of Beauty of Hebron grown this season between Scarlet Runner Beans produced more than double the weight, and making in the market only one-fourth less in price than Myatt's Prolific Ashleaf grown under similar circumstances. The value of Beauty of Hebron may now be enhanced, as this excellent variety has given off here a white or rather colourless (if the want of red or purple on the skin may be so termed) sport, the sport in all other respects possessing the good qualities of its parent; and as the difference in value in the market between a white and coloured Potato is considerably in favour of the white variety, it follows that the white Beauty of Hebron is likely to be an acquisition. Anent coloured Potatoes, it has often been a matter of wonder to me why our principal raisers aim so much at the production of pretty-looking coloured varieties, and why the authorities and judges at exhibitions give so much encouragement to colour; for as yet, so far as quality, production, and power of resisting disease go, no coloured Potatoes are equal in these respects to our best colourless sorts. Why, too, are new sports from Potatoes practically excluded from the International Potato Society's Show, seedlings alone being recognised as worthy of being certificated? I have a suspicion that some of the best new American sorts are but sports from Early Rose, and yet are equally as good and more distinct than some seedlings.—T. LAXTON, Bedford.

AUTUMN NOTES ON RASPBERRY CULTIVATION.

AMONGST small hardy fruits few if any are more useful than Raspberries, and none can be relied on for a crop of fruit with more certainty. In the majority of seasons, when Gooseberries, Currants, and Strawberries are injured by early spring frosts, Raspberries invariably escape through coming into flower later in the season. When in luxuriant health a long succession of fruit can be obtained; in fact, I have been gathering for nine weeks, and could still gather a quantity of small fruits suitable for cooking purposes, but prefer sacrificing these for the sake of next season's crop. Where Raspberries are judiciously managed the young canes not required for producing next season's crop of fruit have been thinned, so as to admit light to those remaining.

The early thinning of the growths is as important in the cultivation of the Raspberry as with the Vine or Peach, and if unnecessary growths are allowed to grow until the end of the season they rob those left of both strength and light. The thorough maturation of their canes is an important object if a large crop of really fine fruits is anticipated. The freedom with which the Raspberry fruits annually under the most unfavourable circumstances is often the main cause for not treating them liberally and well.

If the old fruiting canes are not already removed it should be done without delay, and the young canes retained made secure to the stakes or wires employed for supporting them. A wire trellis such as that used for espalier trees of Apples and Pears, is more suitable for supporting Raspberries, and decidedly preferable to the use of stakes. A suitable trellis will not need so many wires as is necessary for the above-named fruits, three moderately strong wires being ample. The first should be about 18 inches from the soil, the second in the middle, and the third near the top. The height of the trellis will depend upon the length of cane to be left; here they are left from 6 to 7 feet. The canes to fruit next season should now be permanently secured to the wires, so that no more tying will be needed until the following autumn. With a trellis of this description, and the canes early thinned, they have every chance of ripening well before winter; but when stakes only are employed it is not wise to permanently tie them now, for if tied closely together they have no chance of ripening.

Where pruning the top of the canes is practised it is a good plan to carry out the operation some time before the foliage falls, say towards the end of the present month. By so doing the buds plump wonderfully, and with free exposure to light fruit much nearer the ground than would otherwise be the case. Where early autumn tying and pruning can be done it will be found a decided advantage towards aiding the winter work, especially if very severe weather follows.

The soil here is very light, resting on a sandstone formation, and the variety I have found to succeed the best is Cutbush's Prince of Wales. It is a strong robust grower, and produces abundance of large well-flavoured fruits. In a season canes are produced 12 and 13 feet long, and would undoubtedly in more suitable soil attain even a greater length. This excellent variety does not appear to be generally known or grown, but from my experience of it here it is admirably adapted for a light soil. It is easily recognised, having almost a smooth stem with a few black spines, the stem being very silvery in autumn.—LANCASTRIAN.

NEPENTHES MASTERSIANA.

PITCHER PLANTS appear to be gaining increased popular favour, and they are now regarded as something more than mere vegetable curiosities, for better cultivation, the introduction of handsome species, and the raising of numerous distinct hybrids having attracted much attention to the genus, proved also the beauty of such plants in a decorative point of view. In consequence we find hundreds of gardens where Pitcher Plants are grown now for every one that could have been named fifteen or twenty years ago, and further interest is added to collections by the diversity of forms, colours, and markings which distinguish the various species, varieties, or hybrids now in cultivation. The gradations in form and size are very striking. From pitchers 2 or 3 inches long to the gigantic N. Rajah there is every intermediate stage; and in form there is a similar range, some being long, thin and tubular, others cylindrical, and still others nearly globular. The colouring varies from green to the deepest red, nearly black, either what may be termed self-coloured or spotted, mottled, or streaked. An excellent idea of all these characters, their diversity and attractiveness, may be gained by inspecting Messrs. J. Veitch & Sons' extensive collection of Nepenthes at Chelsea, and a better time than the present could not be chosen for this purpose. The houses devoted to these plants now present quite a unique spectacle, the vigorous growth and thousands of pitchers hanging in all directions being suggestive of a tropical thicket. The pitchers, too, are finely coloured, and it is doubtful if there has ever been a finer display of these plants at Chelsea or elsewhere.

Prominent amongst the newer forms is that represented in the woodcut (fig. 44)—Nepenthes Mastersiana, which is one of the most distinct, richest-coloured, and freest-pitchering hybrids yet raised. A row of some twenty or thirty plants in small baskets, each about 5 or 6 inches square, indicate the above characters admirably, most of these comparatively small specimens having six to nine pitchers each, of an exceedingly deep red hue, very neatly formed, and clustering closely round the sides of the baskets, the leaves being shorter than in many other forms. N. Mastersiana is a hybrid, having been raised by crossing

N. sanguinea with *N. Khasyana*, or *N. distillatoria* as it is known in most establishments. It is curious that from the seed thus obtained two distinctly coloured forms should be raised, both exactly similar in shape and habit, but one much darker than the other, the lighter form possessing more of the true *N. sanguinea* colour. Both, however, bear the name given above, and it is not easy to distinguish them except in the tint of the pitchers.

GROS MAROC GRAPE.

No one can see the splendid crop of this handsome black Grape in Mr. Rivers' Nursery at Sawbridgeworth without being impressed with a desire to add the variety to their collections. The Vines

there are thoroughly established, being four or five years old, and thus the character of Gros Maroc has been well proved, and fairly too, for they are about the centre of a mixed house, and cannot thus be subjected to any special treatment as to soil and temperature. Almost every lateral produced a bunch, and some more than one. The bunches are hanging quite close enough together, and are of good size, while the berries have a noble appearance by their pleasing form and magnificent colour; the quality also is very refreshing.

In habit of growth Gros Maroc must be described as robust, in this respect bearing a close resemblance to Gros Colman. The Vine, therefore, needs more space for development than kinds of the Black Hamburg character, and the rods should be quite 5 feet



Fig. 44.—*NEPENTHES MASTERSIANA*.

apart. If worked on the spur system a firm yet good border would seem to be advisable, netted with fibres close to the surface. Firm short-jointed wood would then be produced, essentially fruitful in its nature; but a light rich border deeply penetrated by long thong-like roots would induce luxuriant growth, long-jointed, and probably fruitless, especially if closely pruned.

It is not unlikely that the oldest system of all of training and pruning Vines would be particularly adapted to this variety—the extension system, not in its modified forms, which have passed for extension of late, but the system in its integrity. This consists in

preparing a young cane and fruiting it its entire length, training another growth beside it at a proper distance for the next year's crop, cutting out the "old," yet only two-year-old, fruiting cane entirely after the crop has been secured. This is extension whether the main stem of a Vine is trained horizontally along the front of a house or not, so as to produce canes for covering the entire roof. The so-called extension of the present day is a combination of the ancient or modern, or a number of rods trained from the same stem, and each spurred as in the case of Vines restricted to one rod. With the old extension or "long rod" system there are no

spurs. It was just the Raspberry plan—cutting out a cane when it has done its duty, and having another of equal length and strength ready for taking its place.

In all probability the Gros Maroc would produce more and finer fruit by this plan well carried out than any other; at least, so young canes that have not been shortened much at Sawbridge-worth indicate. It is, according to the same rule, proving excellent for fruiting in pots, every eye showing a bunch, and the berries set freely. This is not the experience of Mr. Rivers alone, but Vines have been fruited satisfactorily in many places this year, for the variety has become widely distributed, and its further increase will only be limited by the supply of plants.—J. W.

EARTH-CLOSET MANURE.

WHEN I see such implicit reliance placed on Dr. Voelcker's analysis and estimate of the above where the earth has been passed only once through the closet, as has been done by your correspondent "INQUIRER," I think it well to state the following experience of my own. I had such a closet constructed for my use, and it was kept exclusively for that. Fully as much earth was used each time as is said by Mr. Moule in his pamphlet to be sufficient; if anything else, rather more. The vault being on a slope was perfectly dry, and, being of a good size, the contents were allowed to accumulate for a year, and then used immediately after being taken out as manure for the Cabbage tribe, the quantity being rather less than that of mixed farmyard manure used for other plants of the same kind in the same quarter of the garden. The difference in growth and colour was markedly in favour of those grown with the contents of the closet, so much so as to strike the eye at once on entering the garden. I should say that, bulk for bulk, the latter was worth double the amount of dung, and this, too, although it was necessarily of the poorest kind, as I am a vegetarian.

Some unknown circumstance must have vitiated and rendered valueless Dr. Voelcker's experiments to elicit such an opinion on earth passed once through the closets as that quoted by "INQUIRER"—viz., "The earth of an earth-closet manure after it has been once used is not more valuable for manuring purposes than in its original dry and sifted condition." This is obviously wrong upon the face of it, and suggests either that there was something wrong with the analysis, or that a trick had been played on the doctor.—A. BOYLE.

A USEFUL PLANT FOR THE MANSION.

To have a continual supply of flowering plants for the rooms and corridors of a large mansion requires a careful selection as well as a considerable amount of forethought, for there are many plants which are very beautiful, and would last a long time in a conservatory where the conditions are favourable, but would begin to lose some of their beauty immediately were they placed where there is comparatively little light. In this class are Fuchsias and Pelargoniums, especially the former, four days at most being as long as they can be expected to look really well. For this reason, although Fuchsias are extremely well fitted in appearance for the lofty corridors I have to furnish, my culture of these plants is confined to the outdoor garden, and the varieties consist mainly of the old Riccartoni and what is now known as *F. gracilis*.

The plant above all other flowering plants for retaining its beauty in the mansion is *Campanula pyramidalis*. Mention was made in last week's Journal of this plant for outdoor ornament, but no one who has ever seen it done well indoors will be quite content with its appearance as it grows outside. True, it will flower when grown in the mixed border as a biennial, and is prettier than many other things often found there; but we do not see a tenth part of its beauty under such conditions, and when I add that I have repeatedly had it in full beauty in the corridors for six weeks at a time, and sometimes it has remained good enough for the purpose for fully two months, it will be readily conceded that it is well worth the little trouble required to grow it. Some twenty or thirty years ago this *Campanula* used to be grown well in many places, and I have seen noble specimens of it 9 or 10 feet high with several stems clothed in beauty to within a foot or two of the ground; but such plants, although they look very grand in a lofty conservatory, are scarcely suited for my purpose, and those I grow are from 5 to 7 feet high, and have but one stem. Grown in this fashion they are not pyramidal, but are a simple cordon of flower nearly from base to summit. They are in 7 and 8-inch pots, and the flowers stand out to a little more than that width, completely hiding the stem and leaves. The prevailing colour I should say is lavender blue (I am writing from memory, and am not quite sure of the particular shade); but a few plants

of the white variety are grown, and they form a pleasing contrast. They look best in groups of ten or a dozen together. I have two large oval-shaped vases which hold that number, and nothing that we can ever put in them has a nobler appearance.

Their culture is very simple. A few seeds are sown in a pot in spring at the time of sowing half-hardy annuals. They are potted off into 4-inch pots after the bedding plants are turned out, and kept in a frame till they become established, when they need no further protection till winter arrives. About the beginning of August they are shifted into pots a size larger, and they remain in them till the flower stems commence to show in the following spring, when they sometimes have another slight shift; but they do not always get it, and it is surprising what a stem a plant will throw up, even when confined to a 6 or 7-inch pot, if a little stimulant is given occasionally.

The only difference required in the treatment to grow the larger-sized plants I have spoken of is to give them more root room during the first summer; but when treated in this way they do not often flower before the third year, and I have seen many plants die during winter when they have been treated rather too liberally. They appear to be safest with a small root space and very plain fare till the flower stem appears, and then they require to be treated liberally. A little frost will not hurt them, a cold frame with a little litter thrown over it during the severest weather being ample protection. The time of flowering is August and September, just immediately preceding the *Lilium speciosum* when grown outdoors, and which I have to succeed them. Common garden soil, or such as ordinary bedding *Pelargoniums* are potted in, suits them very well.

The common Canterbury Bell also well repays for indoor culture. I saw some which Mr. Iggulden had lifted during autumn and potted, which were flowering rather early in spring, and the white variety especially was extremely pretty. The hose-in-hose varieties—*C. calycanthema*—would doubtless do the same should any of your readers prefer them to the simple-flowered varieties.—WM. TAYLOR.

LIFTING PEACH TREES.

THE notes that have recently appeared on this subject are sound and seasonable. The summer is certainly the best time for moving Peach trees, after the crops have been gathered and a good length of growth made. It is a good plan also to replant Peach trees frequently, as a great mass of fibres then form, and whatever food is given to the trees is quickly appropriated and turned to profitable account.

Mr. Bardney grows Peaches rather extensively and certainly well at Norris Green, a long range being devoted to the trees. He thinks no more about digging up and replanting a Peach tree in July than of potting a *Pelargonium*. Trees are lifted every year—that is, if in his judgment they need it, and that his judgment is sound the trees testify. The fruit he obtains is of the first size, quality, and colour; in fact, trees having such clean dark green foliage, medium-sized short-jointed wood, with bold buds, bushy roots, and a good border, could not fail to produce high-class fruit; but that the colour should be so good during a season that has been remarkable for its dull and wet days in the Liverpool district was scarcely to be expected, and it would seem to follow that, given really healthy trees, fruit will colour better without sun than it will with abundance of sunlight and an absence of health. If this were not so Grapes would scarcely finish so well as they admittedly do in some of the dullest and wettest districts in the north-west of England and in Scotland.

A very able gardener, describing Mr. Bardney's practice in a contemporary, refers to the Norris Green Peach trees as the largest he has ever seen moved. This shows that he has only inspected the small battalions; but while the trees are not remarkable for their size they are not pigmies, and if they were as large again they could be moved with equal safety, as, to use a very familiar expression, they are "used to it." The roots are masses of fibres, and the surface of the borders a network of feeding roots. This is the secret of the hard short-jointed wood and fine fruit; this the secret, too, of the fine fruit that Mr. Coleman grows at Eastnor, and of that also grown by everybody else who produces heavy crops of heavy, well-coloured, and highly flavoured Peaches and Nectarines.—S. N.

BRIGHTON AUTUMN SHOW.

SEPTEMBER 13TH AND 14TH.

AN excellent Show was this, favoured by fine weather and thronged with visitors, who found many features of especial excellence. The Pavilion, with its suite of large lofty rooms with glass doors opening

on to the lawn, is admirably suitable for the purpose, and to the plant groups a large tent was devoted on the lawn.

Plants.—For culture and arrangement these were alike excellent. Many were used in the rooms to impart relief and variety to the stands of cut flowers and fruit; but the tent was wisely devoted solely to plants, huge stove and greenhouse plants occupying the centre, with mixed groups and Ferns along the sides—not in formal angular outlines, but in softly rounded or semicircular groups. For the silver cup given by the London and Brighton Railway Company for twelve stove and greenhouse plants Mr. W. Balchin gained an easy victory. All of them were good, but the most noteworthy was a grand *Gleichenia rupestris glaucescens*, a *Croton majesticus* perfect in colour and form, *Allamanda Wardleana*, *Latania borbonica*, a pair of *Cycas revoluta*, and a fine *Stephanotis* very full of bloom. Mr. Balchin also contributed many fine large plants not for competition, which were most useful in imparting the requisite finish to the long central group. For four plants of the same class Mr. Balchin was again first, his *Dipladenia amabilis* being especially remarkable for the large size and abundance of its lovely flowers. Mr. E. Meachen, gardener to C. Armstrong, Esq., was second, and for a grand pair of *Erica Eweriana* and *E. retorta* major merits special mention. Mr. Meachen was first in groups of four confined to Sussex gardeners; Mr. W. Huggett, gardener to Dr. Jeffery, Eastbourne, being second; and Mr. H. Townshend, gardener to Captain Thompson, Withdean, third.

Miscellaneous groups arranged for effect, and each occupying a space of 150 square feet, were highly meritorious. Here Mr. Balchin took first honours with a magnificent group, the colouring charmingly varied—an undergrowth of *Coleus* and *Maidenhair* Ferns, out of which sprang dwarf Palms, a few *Crotons* very highly coloured, and in the background a pair of *Lilium auratum* with the flower spikes half concealed by the gracefully pendent leaves of loftier Palms. Mr. W. Miles, West Brighton Nurseries, was second. Smaller groups of 75 square feet were also good. Mr. E. Meachen was first with a nice bright group in which some *Crotons* and *Amaryllis* were noteworthy; and Mr. J. Turner, gardener to Major Way, Wick Hill, was second with a tasteful arrangement.

To those general favourites, Ferns, an unusually prominent position was given, three prizes being offered for groups of 200 square feet, and a like number for groups of 75 square feet. In the first class Mr. J. McBean, florist, Cooksbridge, won the silver cup presented by James Ashbury, Esq., with an arrangement of great beauty and remarkable originality, for, instead of the stereotyped mound or undulating slope, the surface of his group was boldly broken into a series of miniature hills and valleys, the loftiest hill being in the background, two somewhat lower standing out near the front, one crowned by a noble *Adiantum farleyense*, and the other by an equally fine example of *A. cuneatum*; still lower was a mound of *A. gracilis*, and between these giants were charming undulations of *Maidenhair* Fern. It was really amusing to hear the exclamations of delight from the crowd, and Mr. McBean's triumph was enhanced by the fact that he had three formidable opponents in Messrs. W. Miles, W. Balchin, and the veteran E. Spary, to whom second, third, and extra prizes were awarded in the order in which they are named. An extra prize was also awarded to Mr. H. Vincent, gardener to Mr. J. Hart, Keymer. For the smaller groups Mr. Turner, gardener to Major Wick, was first; Mr. E. Meachen second, and Mr. H. Townshend third.

Of other groups *Fuchsias* were very good, Mr. W. Trangmer, gardener to H. Davey, Esq., Grand Parade, Brighton, being first for well-arranged plants of various useful sizes, all fresh and well bloomed. Mr. Meachen was second. Mr. T. Martin, gardener to J. G. Langham, Esq., Eastbourne, and Mr. W. Hills, florist, Steyning, were respectively first and second for pretty groups of *Coleuses*. Zonal *Pelargoniums* were fine and in excellent condition. For scarlet varieties Mr. H. Townshend was first, Mr. Meachen second, and Mr. J. Spottiswood third. The same three exhibitors divided the prizes for other colours of Zonals, and for Gold and Silver Tricolor *Pelargoniums*. For six double Zonals Mr. Balchin was first, and Mr. Huggett second.

Of other plants Tuberous-rooted *Begonias* were present in considerable numbers, and in great beauty. Mr. R. Pannett, florist, Crawley, had a first-prize group containing upwards of sixty plants—small but very full of large finely formed flowers with colours of many shades of pink, crimson, scarlet, yellow, and white. Mr. W. Margetts was second. Mr. Margetts was first for four plants, and Mr. W. Huggett second, his Mrs. G. B. Howes, a fine scarlet variety, being especially noteworthy. For variegated plants John Warren, Esq., was first with some highly coloured *Crotons*, a magnificent *Anthurium crystallinum*, and a good *Pandanus Veitchii*. Mr. Meachen was second.

Cut Flowers.—Six prizes were offered in two classes for twenty-four varieties of cut flowers in bunches. These were very much admired, nine stands in all being shown, all the flowers being choice kinds cut from stove or greenhouse plants. Mr. Balchin's stand was best, but excellent stands were also shown by Mr. T. Gilbert, nurseryman, Hastings; Mr. W. Archer, gardener to G. S. Gibson, Esq., Saffron Walden; and Mr. E. Morse, nurseryman, Epsom. Some good *Roses* for this time of year were shown. Messrs. Paul & Son, Old Nurseries, Cheshunt, for three trusses each of forty-eight varieties, the flowers of Duke of Teck, Comtesse de Choiseuil, Duchess of Bedford, and Perle de Lyon being really excellent. Messrs. Mitchell of Piltown were second, and Mr. W. Virgo, nurseryman, Guildford, third. For

twenty-four varieties, three trusses of each, Mr. Balchin was first, and Mr. W. Seale, Vine Nursery, Sevenoaks, second. Mr. Balchin had excellent trios of Marie Baumann and A. K. Williams. Messrs. Paul were again first for twelve Teas with Alba Rosca, a lovely white; Perle de Lyon, yellow, full, and finely formed flowers; Catherine Mermet, Etoile de Lyon, lovely pale yellow; Madame Lambard, Niphetos, Madame Camille, Souvenir de Paul Neyron, Souvenir d'un Ami, Marie Guillot, Bouquet d'Or, and Comtesse de Nadaillac. Mr. A. Slaughter, Jarvis Villa, Steyning, was second, and Messrs. Mitchell third. For twelve Perpetuals Mr. A. Slaughter was first, and Mr. R. Spinks, gardener to Lady H. Somerset, was second. Dahlias, Asters, Phloxes, and *Gladiolus* were all well represented. Single Dahlias, especially those by Messrs. Keynes, were deservedly admired, for they were very lovely, comprising shades of white, yellow, rosy purple, striped pink, and scarlet.

Of table decorations Mrs. Seale, Vine Nursery, Sevenoaks, had the best three stands, of which the leading characteristics were lightness with fulness, no crowding, and the colours well blended. Mr. W. Miles was second, and Mr. J. R. Chard, florist, Clapham Common, third. Twenty-three bridal and ballroom bouquets were shown, most of them meritorious, though some were sadly crowded. They were shown in pairs, and Mrs. H. H. Moore, florist, Chichester, was first with excellent bouquets—light, full, and elegant; the leading flowers in the bridal bouquet being *Eucharis*, *Stephanotis*, and *Tuberose*, and in that for the ballroom *Eucharis*, Blush *Roses*, white *Lapageria*, and scarlet *Bouvardia*. Mr. W. Balchin was second, and Mr. W. Miles third. Eight funeral wreaths were shown on black velvet, Mr. W. Brown, florist, Richmond, being first with a magnificent wreath some 2 feet in diameter; Mr. Balchin being second, and Mr. H. H. Moore third. *Eucharis amazonica* was much used in every wreath. Wild flowers were shown in a neat and creditable manner, Mrs. M. Dixon, Searles, Fletching, being first with upwards of a hundred varieties. Mr. W. Hills was second, and Mr. J. Budd, Worth, Crawley, third.

Fruit.—Grapes were generally well coloured among black varieties, but the bunches were of medium size. Muscat of Alexandria was shown in considerable quantities, most of the bunches being large; but almost all were deficient in colour, a striking exception being the two first-prize exhibits of Mr. T. Chatfield, gardener to T. Holman, Esq., East Hothly, whose bunches were small but of a rich uniform golden amber that was highly creditable. Other prizewinners for Muscats were Messrs. C. Goldsmith, S. Ford; and for black Grapes first prizes to Mr. S. Ford and Mr. J. Austin; seconds to Mr. G. J. Warren, gardener to Mrs. Hankey, Balcombe Place, and Mr. J. Spottiswood; and third to Mr. W. Huggett. Melons.—Mr. W. Martin, Blackstone, Woodmacote, was first with a small *Hero* of Lockinge. Other fruits were inferior, excepting some fine examples of Shepherd's Perfection exhibited by Messrs. Cheal & Sons, nurserymen, Crawley, who also had a creditable exhibition of forty dishes of Apples. Good examples of Warner's King, Nelson's Glory, Dumelow's Seedling, Reinette du Canada, and Lord Suffield were also shown by other exhibitors. Among Pears were several good dishes of Bcurré d'Amanlis, Mr. H. Townshend gaining a first prize with it. Very few Peaches were shown. The best were some fine Barringtons by Mr. R. Biggs, High Beeches, Crawley; and Mr. McLeod, gardener to The Speaker, Glynde Place, had some Lord Palmerstons, to which a third prize was awarded. The best Plums were Golden Drop and Green Gage, first prize being awarded to both in different classes, the one to Mr. J. Staples, Chipstead, Sevenoaks, and the other to Mr. J. Burtenshaw, gardener to Mr. Cartwright, Albourne Place. A first-prize dish of fine Brunswick Figs came from the Speaker's garden, Mr. T. Butler, North Lancing, being second, and Mrs. M. Wood, Shoreham, third, both for the same kind. Only one collection of twelve dishes of fruit was exhibited by Mr. C. Goldsmith, gardener to Mrs. Lambert, Bletchingley, who had excellent examples of Black Alicante and Muscat of Alexandria Grapes, and a handsome Melon well netted.

THE APPLE CROP.

THE Apple crop generally appears very small this year, and nearly all well-known varieties have failed; yet there are solitary instances where trees are heavily laden, while the majority of their neighbours are fruitless. Some of the late-flowering kinds, of which Court Pendu Plat is an example, are conspicuous for their absence of fruit, while comparatively small bushes of the same size and age of Lord Suffield, Cellini, Cox's Pomona, and Starmer Pippin are heavily laden with large fine fruit. The first two have never failed with me during the past five years, and could not be in a much worse locality in any part of the country. The first-named is too well known as a free, useful, early kitchen Apple to need any recommending; but this variety with all its good properties is useless for planting where the soil is wet and cold. I am well acquainted with localities in Lincolnshire where fruit generally does well, but Lord Suffield fails to give satisfaction, and the trees after they have been planted a season or two canker badly. During the winter of 1880 and 1881 hundreds of trees of this variety were most severely injured, and it is questionable if ever they recover. Here the soil is well drained from the rock being very near the surface, and consequently of too

light a nature for fruit trees generally, yet it is in every way suitable for the first two varieties. They could not flourish and fruit with greater freedom in any good soil or locality. It is strikingly evident that these two varieties of Apples are at home when planted in a light dry soil, for the majority of other fruit trees in a dry season become infested with red spider, while these retain a healthy vigorous appearance, and are not subject to the attacks of this troublesome enemy.—L. D. W.

THE SPRUCE-GALL APHIS (CHERMES ABIETIS).

We have received during the present summer examples of the above insect from counties as widely separated as Yorkshire and Sussex, and it would appear that this pest is now decidedly on the increase throughout England. With regard to Scotland, we are not at this moment possessed of observations that would enable us to form an opinion. The species, also known as the Spruce Adelges, has been noticed during many years in Germany, though its life history has not yet been satisfactorily made out. As the name indicates, it is particularly attached to the Spruce, but doubtless several other Conifers are liable to its visits. Mr. Carter of Keighley, who has seen the Spruce-gall aphis in a variety of places, attributes the spread of the insect, at least partly, to the wholesale destruction of wasps. He has often, so



Fig. 45.—Chermes abietis. The Spruce-Gall Aphis.

he informs us, watched the wasps busily engaged amongst the Spruce Firs, and believes they clear off Chermes Abietis very effectually. Hence he argues that foresters ought certainly to protect wasps, although gardeners may wish to reduce their numbers on seemingly good grounds.

The insects that are placed in science under the genus Chermes occupy a place somewhat intermediate between the aphis or fly, and the coccus or scale. Unlike the aphides, they do not winter in the egg state, but larvæ are hatched out in autumn. Whether these form or live in galls is uncertain; these are, it is supposed, full-fed before the winter, and after pupation they show themselves during the spring upon the buds of the Spruce as wingless females. These are oval, flattened, and woolly, of various tints, mostly green or purple, and certainly very mischievous, since each one deposits about a couple of hundred eggs, besides which they cause the irritation that produces a gall by driving their suckers into the young twigs. While these are gradually increasing in size, the Chermes larvæ are growing and feeding on or around the galls, within which at last they are hidden. This is a singular fact in the history of these larvæ, considered by some naturalists to arise from the enlargement of the morbid growth of leaves, which, as they become puffy, overlap the tiny insects. Miss Ormerod, however, explains it differently, her observations, which are generally accurate, leading her to the opinion that at a certain stage a crack opens along the gall, towards which the Chermes larvæ direct their course, and so shelter in the chambers within the gall.

About six weeks are required to bring the Spruce galls to their full size, when they begin to harden, the larvæ enclosed having by this time entered the pupal state. The pupæ are of a dull white colour and powdery. It is just as they are ready to produce the

mature Chermes that the galls crack, and the flies soon appear. These seldom fly far from the tree on which they have been reared, the females ere they die depositing small parcels of eggs. These are small in number, probably not more than a tenth of those laid by the females of the spring brood. The economy of the second brood of larvæ has not been fully investigated. Evidently these autumn feeders develop into the flies that are troublesome in spring. Afterwards the empty galls, as is commonly the case, if unremoved afford a home to sundry mites or Acari.

It is agreed that no remedial process can be of any good when mature trees in a plantation are found to be badly infested. Not unfrequently it happens that the pest makes its appearance upon a few scattered trees in a plantation. It is worth while to sacrifice these, because they are likely to prove centres of infection. If the gall-covered shoots are not removed and burnt they may, should they be laid by for a few weeks amongst underwood, after all produce a swarm of the Chermes. Trees that are but partially attacked in the early part of the season may be washed with one of the liquids which are proved to be effective in the destruction of aphides and cocci. In the event of an arrival of Chermes Abietis upon saplings of the Spruce, it has been recommended to carefully examine them and cut off the shoots that are beginning to show galls. Plantations that are too thickly set are specially liable to this pest, which is seldom seen in open and elevated positions.

The woodcut (fig. 45) represents the insect of its natural size, and greatly magnified.—J. R. S. C.

ROOT-PRUNING.

As the time will soon arrive to commence this useful operation, it will be well to carefully note all those trees that are making too much wood and bearing no fruit, also those that make hardly any wood, and those that are in bad health. Lifting and root-pruning will be the best practice to adopt for improving all trees that are in an unsatisfactory state. Apples on the Paradise and Pears on the Quince are naturally free fruiters and shy growers, but they require lifting occasionally to keep them in good health; and if any trees are given to canker it will help to remedy that evil. The best time to root-prune is when the leaves commence changing colour.

In the case of trees that are producing too much wood it will be best to open a trench about 6 feet from the stem, work the soil carefully from the roots to within 2 feet of the tree, cutting the tap-roots well back, removing those that have a tendency to descend, but retaining the fibrous roots, which are the fruit-feeding roots. When working the soil back mix plenty of lime rubbish and burnt earth with it, so as to encourage fibrous roots.

Trees that are not making sufficient growth should have the soil removed from the roots, adding fresh rich soil, and top-dress with manure in summer. Dig a trench round those that are unhealthy and work the soil from the roots, supplying good dry fibrous loam, with little lime rubbish mixed with it. Top-dress in the summer, and keep the fruit off for a year or two, when the tree will regain its former health.—A. YOUNG.

GOOD NECTARINES.

ALL who have these fruits to produce as early in the season as possible should secure a tree of Lord Napier for the early house. It is not wise to throw out any tree that annually produces a good crop of fruit, and plant a young tree, thus losing a crop for a season or two. Much the better plan is to grow the tree in some light position, under glass, if possible, until it is in a fruit-bearing condition, when it can be removed to the early house, and the other tree removed and planted somewhere else or destroyed. In the latter case the tree of Lord Napier can after the first season be planted in the early house, and the other cut away as the young tree develops, by which means the house will rapidly be furnished and no crop of fruit lost. From my experience of Lord Napier I am inclined to believe it will become a very popular early variety. It is a vigorous grower and produces fruits of a very large size, which colour well when fully exposed to the sun. I was under the impression that it did not colour really well from several examples I had seen exhibited before my tree commenced fruiting; but with me its fruits coloured much more highly than I had anticipated, but to accomplish this they must be fully exposed to light. I have heard this variety is rather shy, but it has not displayed this faulty disposition here or in a neighbouring garden, as it commenced fruiting freely in a very small state and has continued prolific ever since.

The tree I have is very vigorous in spite of being lifted every

season since I first obtained it; in fact this is the treatment the whole of my Peaches and Nectarines receive, and some of the trees have a spread of branches of 25 feet or more. It is surprising what fine healthy roots trees have that are lifted every year: they never lose a bud in spring, and seldom drop a fruit in stoning. These two faults were serious here when I took charge, the fruit also developing very unevenly during their first swelling; but with annual lifting and working into the borders a quantity of clay, fresh turfy loam, and a good sprinkling of lime for the roots to work amongst, the whole of the above annoyances have disappeared. When trees are left undisturbed for a number of years their roots disappear from the surface, and soon present any but a healthy appearance. The soil, too, is liable to become dry, and if once allowed to get into this condition it is difficult to thoroughly soak it with water afterwards, and failure is sure to result. When lifted carefully and replanted the water passes freely through the soil and the roots are readily kept moist through the whole season, which is the secret of success.

The Pine Apple is a very good Nectarine, which should be accorded a place in every garden. Few, if any, surpass it for richness of flavour, high colouring, or freedom of fruit-bearing. Its parent, Pitmaston Orange, is a grand variety of first-rate flavour, but for colour cannot be compared to the Pine Apple. It is said that Byron is an improvement on Pine Apple, and if it really is it must be superb. I have a young tree, but it has not yet fruited, and I shall be glad to see in the Journal the opinions of those that have tried it. Although Elruge is a valuable well-coloured free-fruited kind, it cannot favourably compete with the Pine Apple, which is much better than any variety I am acquainted with. It appears to have one fault in some gardens, and that is cracking; but whether this is really a fault of the variety or the system of cultivation I do not know. Here it has never produced a cracked fruit, but it is kept a little drier at the roots when the fruits are ripening than is necessary with any other variety I grow. This appears to suit the Pine Apple, and the fruits swell to a large size. It is a very accommodating Nectarine, and will do well at the coolest end of a second-early house as well as in later succession houses, and is valuable for the latest house of all.—W. BARDNEY.

STRIKING EUONYMUSES.

To succeed in striking the variegated forms of Euonymus, the care advised by Mr. W. Bardney at page 240 may be necessary; but *E. japonicus*, the commonest of the evergreen kinds, can be increased much more readily, as the following will show.

Some years ago short pieces were taken off with a heel in October sufficient to fill two large handlights. They were inserted in sand, well watered once, kept shaded, and efficiently protected from frost. By the following May, with no other care, they were all rooted and growing, and, being hardened off, were planted in a nursery bed the commencement of June. They were shaded there too for a fortnight, and by the end of September were good plants.

It is well to state that plants of that age require protection from frost during their first winter, so far as to prevent the soil being frozen. Careful mulching is sufficient protection against ordinary frost.—A. B.

HERBACEOUS PLANTS.

THE great glory of my herbaceous border I think culminates in the end of June and on into July, when the grand masses of Delphiniums are in full flower, some Lilies are in their prime, and certain other plants have not yet passed away; and it is for this reason that I do not at all agree with the prudery that banishes everything from the border but hardy perennials. The gaps that are made by bulbs which have died down and herbaceous plants which have died off I do not hesitate to fill up with Geraniums, annuals, &c. I can thus secure a certain gay appearance to the border, which I think is impossible when only herbaceous plants are issued. Dead stools of Delphiniums and flowerless stems of Lilies do not tend to make a border pleasant to look on, and therefore I think that it is perfectly allowable to supplement them with other plants. Single Dahlias come in usefully if sparingly used, and the slugs have this year taken very good care that I should not have too many of them; and although I am not at all likely to be run away with by the fashion which now prevails regarding them, I yet think that they are very useful. If, however, it is attempted to increase their size, their usefulness will be greatly destroyed. Their chief value is for cutting, and if you get them too large they are of no use. The white one, of which so much has been said, I do not care a rush about. It is not nearly

so good as the white Japanese Anemone, and that is good enough for me.

My chief herbaceous border is about 100 feet long, and this I have for the first time edged this year with the pretty little *Campanula pumila alba*. I planted it amongst the Crocus early this year, and it has now made my border very pretty, as it is full of bloom with its pure little white bells, and will form a pretty carpet through which the Crocus will push their way. At the back I have had some grand masses of Lilies—testaceum with stems 6 feet high; the lovely old white *L. candidum*; the common Tiger Lily, bold and good; while in the front there have been some other kinds recently planted, which I fear the wet winter did not suit, such as *Humboldtii*, *superbum*, *Michauxii*, *Leichtlinii*, and *Batemaniae*. I had a fine mass of the old Orange Lily last year, but this season it has not flowered, and looks altogether in a very dilapidated condition, I imagine owing to the wet. Some of these have flowered, but so small as hardly to be deserving of being noticed. I am hopeful that another year they may do better. But I think the chief glory of this border has been a magnificent plant of *Campanula pyramidalis*, white. I had it in a pot and planted it out early this year. It has thrown up about a dozen flowering stems varying in height from 3 to 5 feet, and one mass of flower from the very bottom. Nothing can be more beautiful than the mass of snow-white blossoms standing so grandly up above the foliage and the surrounding plants. It is truly what some have described it—a noble plant. I have had also here a very common bulb which I have never flowered before—*Ornithogalum arabicum*, but which is certainly deserving of more extended culture. It is much prettier than the common Star of Bethlehem, taller in growth, pure white, with a black spot in the centre of the flower. Another white flower very useful for cutting is the old *Achillea Ptarmica* fl.-pl., which indeed is almost a weed, as it runs so far under ground and the clump requires taking up every year. I see a correspondent mentions this as being in flower ten months in the year. Surely this is a mistake. It does not come above ground until March, nor commence to flower until May. Nor must I forget the delightful *Gypsophila paniculata*, of which I have now a large bush with its light cloudy-looking blooms which make it so valuable for the upper part of a stand for the table, giving that lightness which is so desirable and so seldom achieved. *Anemone Honorine Joubert* has flowered early this year, and will doubtless continue for weeks to come, and contrasts well with *Lychnis chalcedonica flore-pleno* close by.

Of yellow flowers I have had several of the *Hypericums*, some of which are very pretty. *H. olympicum* is a dwarf-growing kind, while the old garden flower *H. calycinum* is always showy and interesting. I had also two *Senecios* which ought certainly to go into the Index Expurgatorius of herbaceous plants. I received them under the names of *empetrifolium* and *asterifolium*; but whatever their names may be they are unworthy of a place, as the common Ragworts of our lanes and fields are much brighter and prettier. *Bupthalmium salicifolium* is a very hardy and bright-flowered plant, and its blooms are very valuable for cutting. There is also a pretty little *Coreopsis tenuifolia*, interesting from the fact that it is a perennial.

Blue flowers were not so plentiful with me as during June, when the Delphiniums were so fine. A few, however, of these were in flower; while large masses of *Echinops*, though hardly elegant in form, were yet by their pleasing colour very attractive. *Aster alpinus* can hardly be called a blue flower; still there is a grey shade in it which makes it desirable as a contrast.

The rockery at this season does not present many objects of interest. There is, however, in flower the charming little *Androsace lanuginosa*, one of the hardiest and most easily grown of this pretty tribe. I see, moreover, that *A. carnea* and *A. carnea eximia* have well established themselves, so I hope to see good blooms of them by-and-by. *Dianthus Segurii* is pretty and interesting for its flowers after all the other Dianths have ceased. *Campanula pulla*, too, lasted on well into July, and I doubt if there be amongst this very numerous class any prettier representative of it than this.

There is one plant which has been a puzzle to me. I received the seed from a young friend in Canada, and on flowering it proved to me the white variety of *Verbascum Blatta*; but I was assured by an eminent botanist that I must have been mistaken, as it was not indigenous to Canada, although my friend assured me that it came up on every piece of waste ground. Is it, then, one of those cases in which an introduced plant has taken the place of the indigenous plants? It seeds, indeed, in sufficient quantities to fill up a whole country side, and it may possibly have thus established itself. It grows to a height of 6 feet and more, and is pretty enough in moderation; but it must be carefully watched, or, like Borage, it will seed itself all over the garden.

The little Paquerette Roses keep continually in flower in the border and cannot be too highly recommended, as they flower from the beginning to the end of summer. I have said nothing about Phloxes and Pentstemons, but they of course occupy a prominent place just now; and as I look out on my borders gay with the flowers I have mentioned (save the Lilies, which have many of them ceased flowering), and with plants of Geraniums of various colours, and the fine foliage of *Maréchal McMahon*, with annuals such as Sweet Sultan, and fragrant with rows of Sweet Peas and Lavender, and with Stocks and Mignonette, I can feel perfectly satisfied with my little plot; and am not in the least envious of some of my richer neighbours, whose parterres are glowing with crimson and gold, or with carpet beds laid out in such artistic devices as coats of arms and butterflies, while not a breath of sweet odours comes from acres of these brilliant polychromes. Everyone to their taste, but my experience of this spring and summer has only confirmed me in my preference for the mixed borders.—D., Deal.

INTERNATIONAL POTATO SHOW.

SEPTEMBER 20TH AND 21ST.

YESTERDAY the annual Exhibition of Potatoes was opened as usual at the Crystal Palace, Sydenham, an extensive and excellent display of these useful vegetables being provided. Both in numbers and quality the exhibits compared very favourably with those at some shows in preceding years, the competition being very keen in all the leading classes, as is shown by the numbers given under each of the classes in the following brief report. Two hundred and seventeen collections were staged in competition, comprising over 1300 dishes, or a total of 12,000 tubers, these numbers being exclusive of the numerous large collections staged by nurserymen not in competition. After the judging was completed a luncheon was held in the Marble Hall, Mr. Alderman de Keyser presiding in the unavoidable absence of the Lord Mayor.

The following is a list of the prizewinners and the names of the principal varieties shown in the respective classes:—Twenty-four varieties of Potatoes, distinct, nine tubers of each (open). All the prizes in this class are given by the Crystal Palace Company, who contribute thirty guineas towards the Exhibition. Twelve collections were staged. First, Mr. W. Ellington, West Row Gardens, Soham, with large, even, and handsome samples of Queen of the Valley, Bresee's Prolific, Carters' Eight Weeks, International Kidney, Vicar of Laleham, Blanchard, Adirondack, Porter's Excelsior, Covent Garden Perfection, Schoolmaster, Matchless, White Emperor, Triumph, Early King, Reading Russet, Wiltshire Snowflake, Grampian, Rector of Woodstock, Mr. Bresee, Woodstock Kidney, Prizetaker, Pride of America, Tifties Annie, and Early Border. Second, Mr. Thos. Pickworth, Loughborough, also with a fine collection; the tubers rather smaller but very even and clean. Third, Mr. H. E. Gribble, Canon Hill Gardens, Maidenhead. Fourth, Mr. William Finlay, Wroxton Abbey Gardens, Banbury. Fifth, Mr. W. Kerr, Dargavil, Dumfries; and sixth, Mr. James Cannc, Winmarleigh, Garstang.

Eighteen varieties of Potatoes, distinct, nine tubers of each, open to noblemen's and gentlemen's gardeners only, and the awards to be made by three gentlemen's gardeners, not competitors. All the prizes in this class are given (in medals, plate, or money) by Messrs. Sutton and Sons, seedsmen, Reading. Eighteen collections.—First, Mr. James Matthews, Woodstock Park Gardens, Sittingbourne, who had a most creditable collection, comprising Beauty of Kent, Pride of America, Holborn Favourite, Reading Abbey, Superior, Magnum Bonum, Triumph, Woodstock Kidney, Adirondack, Suttons' First and Best, Beauty of Hebron, Bedford Prolific, Pride of Ontario, Early Goodrich, Trophy, Wiltshire Snowflake, Reading Russet, and Myatt's Ashleaf. Second, Mr. J. Hughes, Eydon Hall Gardens, Byfield, his best being Triumph, Reading Russet, International Kidney, Mr. Bresee, and Jackson's Improved. Third, Mr. R. West, Northlands, Salisbury, very close in quality; fourth, Mr. H. E. Gribble; fifth, Mr. W. Finlay; sixth, Mr. W. Skarratt, Woolley Firs, Maidenhead Thicket.

Twelve dishes of Potatoes, to consist of six English and six American varieties, distinct, nine tubers of each, open. The first prize in this class is given by Messrs. Bliss & Sons, seedsmen, New York; the second by Vice-President Mr. Alderman Hadley; and the third by Messrs. George Ure & Co., Bonnybridge, Scotland. Twelve collections.—First, Mr. T. Pickworth with fine samples of Woodstock Kidney, Matchless, Ashtop Fluke, Queen of Valley, International, Rose, King of Flukes, Trophy, Beauty of Hebron, Amazon Queen, Triumph, and an unnamed variety. Second, Mr. R. Dean, Ranelagh Road, Ealing, with a very beautiful collection of clean even tubers. Third, Mr. W. Ellington with large samples. Fourth, Mr. H. A. Gribble; fifth, Mr. W. Finlay; sixth, Mr. Joseph Butt, Little Church Street, Wisbech.

Six dishes of Potatoes, distinct varieties, nine tubers of each, open. The first prize in this class is given by Vice-President James Abbiss, Esq., J.P.; the second by Vice-President L. Fawell, Esq., 4, St. Paul's Churchyard, London; the third by William Holloway, Esq., 5, St. Paul's Churchyard, London. Twenty-one collections.—First, Mr. J. Pickworth with a neat collection, comprising Reading Russet, Ashtop Fluke, Woodstock Kidney, Blanchard, Grampian, and International. Second, Mr. W. Finlay with a collection very close in merit to the preceding. Third, Mr. J. Tooley, Newland, Banbury; fourth, Mr. F. J. Hart, Ospringe Road, Faversham; fifth, Mr. G. Akhurst, gardener to the Rev. J. Brama, Faversham.

Four dishes of Potatoes, the largest and handsomest, six tubers on each dish, of any variety. All the prizes in this class are offered by Messrs. Harrison & Son, seedsmen, Leicester. Ten collections.—First, Mr. J. Pickworth with four dishes of International even and large. Second, Mr. W. Ellington with extremely large samples of Queen of the Valley, White Elephant, Silverskin, and International. Third, Mr. H. E. Gribble; fourth, Mr. C. Osman, Sutton, Surrey.

Three dishes of white round Potatoes, distinct varieties, nine tubers of each, open. The first prize in this class is given by James Wright, Esq., Falkirk, N.B.; the remainder are given by the Amies' Chemical Manure Company, 75, Mark Lane, London. Thirteen collections.—First, Mr. R. Dean with Bedford Prolific, Porter's Excelsior, and Model—very even and good. Second, Mr. W. Ellington with Bedford Prolific, Schoolmaster, and Porter's Excelsior. Third, Mr. W. Kerr. Fourth, Mr. Oliver Goldsmith, Polesden Lacey, Dorking; all showing very neat samples.

Three dishes of coloured round Potatoes, distinct varieties, nine tubers of each, open. The first prize in this class is given by Mr. Richard Dean, seed-grower, Ealing and Bedford, London. Nineteen collections.—First, Mr. J. Pickworth, with large samples of Reading Russet, Blanchard, and Queen of the Valley. Second, Mr. F. Miller, Northdown, Margate, with Vicar of Laleham, Blanchard, and Reading Russet, very good. Third, Mr. R. Dean; fourth, Mr. H. E. Gribble.

Three dishes white kidney Potatoes, distinct varieties, nine tubers of each, open. The first prize in this class is given by Messrs. Thos. Gibbs & Co., seedsmen, Piccadilly. Seventeen collections.—First, Mr. R. Dean with Woodstock Kidney, Edgecote Seedling, and International. Second, Mr. F. Miller with Jackson's Improved, Yorkshire Hero, and Woodstock Kidney. Third, Mr. H. E. Gribble; fourth, Mr. W. Ellington.

Three dishes of coloured kidney Potatoes, distinct varieties, nine tubers of each, open. The first prize in this class is given by Vice-President Shirley Hibberd, Esq. Thirteen collections.—First, Mr. R. Dean with American Purple, Mr. Bresee, and Beauty of Hebron. Second, Mr. W. Ellington; third, Mr. F. Miller; fourth, Mr. G. Akhurst.

Best two dishes of Potatoes, to consist of one dish of Suttons' First and Best, and one dish of Suttons' Magnum Bonum, nine tubers of each. All the prizes in this and the next class are given by Messrs. Sutton & Sons, seedsmen, Reading. Eight collections.—First, Mr. W. Finlay with Suttons' First and Best and Magnum Bonum. Second, Mr. R. Stowe, Kimbolton, St. Neot's; third, Mr. J. Matthew, Woodstock Park Gardens, Sittingbourne; fourth, Mr. Ross, gardener to C. Eyre, Esq., Newbury, all staging very even clean tubers.

Best two dishes of Potatoes, to consist of one dish of Suttons' Reading Abbey, and one dish of Suttons' Red-skinned Flourball, nine tubers of each. Six dishes.—First, Mr. G. Akhurst with large tubers; second, Mr. W. Finlay; third, Mr. T. Pickworth; and fourth, Mr. P. Cornish, The Shrubbery, Enfield. Best dish of Schoolmaster Potato, nine tubers, open. All the prizes in this class are given by Mr. Charles Turner, Royal Nurseries, Slough. Thirteen dishes.—First, Mr. W. Kerr with beautiful even tubers of moderate size; second, Mr. C. Osman; third, Mr. W. Ellington; fourth, Mr. P. Cornish.

Best dish of Potatoes, new varieties in commerce, not offered to the public before season 1882, nine tubers, open. All the prizes in this class are given by Messrs. Hooper & Co., seedsmen, Covent Garden, London. Thirty-five collections.—First, Mr. F. Miller with handsome specimens of Reading Russet. Second, Mr. P. McKinlay, Headly Lodge, Penge, with the same variety, and he was also third with Suttons' Prizetaker; Mr. W. Ellington being fourth with Reading Russet; fifth, Mr. W. Kerr with Queen of the South; and sixth, Mr. T. Pickworth with Reading Russet.

Nine dishes of Potatoes, distinct varieties, nine tubers of each, open. All the prizes in this class are given by Mr. C. Fidler, Reading. Twenty collections.—First, Mr. J. Hughes, gardener to Col. Cartwright, Byfield, who had even samples of Beauty of Hebron, Purple Ashleaf, Adirondack, Manhattan, Porter's Excelsior, Reading Russet, Blanchard, Queen of the Valley, and International. Second, Mr. C. Ilott, Wakefield Park Gardens, Mortimer, with Purple Kidney, Surprise, Wonderful Red, Vicar of Laleham, Tifties Annie, Reading Russet, International, Standard, and Garibaldi; third, Mr. J. Butler, Sittingbourne; fourth, Mr. J. Butt; fifth, Mr. F. J. Hart, Ospringe Road, Faversham.

In the classes for seedling varieties not in commerce the entries were numerous, but when our reporter left the Exhibition only the following had been certificated:—

Recorder (Dean).—A seedling white kidney from American Success crossed with Woodstock Kidney. Of neat even shape, few eyes, and very regular; white, and of moderate size.

Alderman De Keyser (Fenn).—A second early coloured kidney; a cross between American Snowflake and a discarded seedling. Skin rough, dull red, inclining to white; form roundish, even, and few eyes.

James Abbiss (Fenn).—A white round very early dwarf variety, a cross between Turner's Union Round and Shutford Seedling. Of moderate size, but even and of good form.

Sir Walter Raleigh (Ross).—A seedling from Excelsior, white, round, and of good form.

Miscellaneous exhibits were numerous. Messrs. Sutton & Sons, Reading, had a very extensive and handsome collection of English and American Potatoes, representing a great number of varieties, large heaps of Reading Russet, Suttons' First and Best, and Magnum Bonum being staged. Messrs. Harrison & Sons, Leicester, had a large collection of Potatoes, comprising numerous varieties. Mr. R. Dean, Ealing, had an extensive collection of Potatoes, some fine samples of Trebons Onions, and a number of Fenn's seedling Potatoes. Messrs. Webb & Sons, Stourbridge, exhibited a large collection of handsome tubers, representing over seventy-five varieties. Messrs. C. Lec and Sons, Hammersmith, contributed a large collection of varieties, the tubers being mostly of good size and even. Mr. T. Laxton, Girtford, Bedfordshire, sent samples of his new Runner Bean Girtford Giant, Selected White Spanish Onions, and White Beauty of Hebron Potato. Mr. G. Fidler, Reading, had a large collection of Potatoes representing a number of the best varieties, and Messrs. Daniels Bros. had a large heap of White Elephant Potato.



HARDY FRUIT GARDEN.

ROOT-PRUNING is absolutely necessary to insure fertility in fruit trees confined to limited space and formal training as wall trees, cordons, espaliers, pyramids, and bushes, which are not forced into fruitfulness by summer-pruning or pinching. From the absence of fruit in this and previous seasons trees have made much foreright or breastwood, the early pruning or stopping of which has caused a multiplicity of subsequent growths, which are more likely to be followed by a late growth than be formed into spurs or fruit buds, especially if the autumn prove wet and sunless. It seems that in planting fruit trees to be trained formally and limited to space, that the root space is not taken into consideration so as to insure a reciprocal action between the head and roots; consequently when the season is moist the roots extend in the unrestricted area, often of loose and rich soil. The nutriment absorbed is more than is needed for the swelling of the fruit and the formation and perfecting of growth for future crops. Pruning in cases of this description, instead of being an aid to fertility, induces late growth, and is thus practically useless, as is evidenced by a number of trees in gardens which, though faultless as to training and to outward appearance healthy, are conspicuous year after year for sterility. If trees can be induced to bear full or fair crops of fruit there is little difficulty with them either as regards the pruning to keep them in shape or insure their continued fertility.

Root-pruning is generally postponed until the fall of leaf, when no change can occur in the character of the buds. This should be borne in mind by those contemplating root-pruning, as, if done after the leaves fall, a year must elapse before any transformation of the buds can be anticipated. It has been proved that root-pruning practised sufficiently early in the autumn or late summer to check any tendency to late growth may cause the wood buds to be developed into fruit buds, and its benefit be felt in the ensuing year. To effect any good for next season it must be done during the present month carefully and judiciously. The very vigorous must not be operated upon so severely as those that are moderately vigorous, as they will have larger sap vessels and be likely to suffer most from the larger extent of their evaporation surface when the supply is cut off; hence in their case a root or two should be cut at a time, and its effect seen before proceeding further. If the severing of a few roots does not cause any drooping of the young sappy growth, or only slightly under powerful sun, then a few more roots may be cut, and at the same time any useless spray removed. If the root-pruning be so carried out as to prevent any further growth in the trees, but not to the extent of causing the shrivelling of the young shoots or the severe flagging of the foliage,

the object of the operation will be attained—i.e., the prevention of late growths, the conversion of wood into fruit buds, and the thorough maturation of the growth; but with the sudden collapse of the foliage none of those can be effected.

Trees only moderately vigorous will need but little root-pruning to check the tendency to late growth and secure the thorough ripening of the wood. In any case it must be done with judgment and suited to individual requirements, remembering that it is not the roots near the stem of the tree that should be detached, but those at a distance of not less than one-third the distance the tree is in height or extension of head, calculating from the stem, so as to save as many as possible of the fibres proceeding from the root-stem and encourage them there.

It will also be necessary to discriminate between trees that are of full size and those that are extending. The former, having shorter and firmer growth, will bear more severe root-pruning than young trees with fewer and more sappy growths. If the growth be not completed any severe check given the growth of young trees will probably cause them to lose their points or die, if indeed it does not cause the wood generally to shrivel. This must be carefully guarded against. Another example of the need for cautious proceeding will be present in the Peach and Nectarine, they being prone to make late growth and have the shoots more sappy in late summer than most other fruit trees. These should be operated on very moderately at first, by degrees curtailing the supply of nutriment to check fresh growth and yet retain the foliage for the benefit of the wood and buds.

FRUIT HOUSES.

Melons.—Plants just swelling their fruits require attention to guard against canker at the collar and in the old growths, freshly slaked lime being applied on the first appearance of canker, rubbing and pressing it well into the affected parts. Repeating the application if it becomes necessary will arrest the further progress of the malady. As regards cracked fruits, the best preventive is a lessened supply of water at the roots and a drier condition of the atmosphere, cutting the shoot carrying the fruit about half way through a few inches lower than the fruit towards the collar of the plant. Maintain a night temperature of 65° to 70° and 75° in the day, advancing to 80° from sun heat, increasing to 85° or 90° with ventilation. Syringing must only be practised on bright afternoons, and then early and moderately. Earth up the last batch directly the fruit commences swelling, and keep the laterals closely pinched, so as to admit all the sun possible to the principal growths. The foliage of plants in pits or frames should seldom be damped, and water at the roots must be given carefully. Apply good linings to the bed to finish off the crop as soon as the heat is found to be declining, and close early, employing a covering over the light on cold nights.

Vines.—Vines intended to ripen their fruit next April or early in May must be pruned at once, so as to afford a season of rest before commencing to force. Clean the glass and woodwork thoroughly, painting if necessary, so as to have it hard and dry before closing the house. Remove the old mulching and inert surface soil, and supply good loam and a little bone manure. This annual surface-dressing encourages the formation of surface roots, which should be fed in summer or during the growth of the Vines by manurial mulchings. Intermediate houses will now, or soon, be cleared of the crops; and if the wood of the Vines is not thoroughly ripe fire heat should be applied in the daytime, ventilating freely, turning the heat off at night, and check all lateral growth.

Young or recently planted Vines that have been allowed to ramble may now have some of the surplus growths removed, being careful to retain the leaves on the principal rods, maintaining a warm dry airy atmosphere till the wood is brown and hard. Late Grapes ought now to be fully ripe, or if not afford a circulation of warm rather dry air until all uncertainty about their being thoroughly ripe is past. Black Hamburgs in their stages of ripening should also have a little fire heat in the daytime. Thin-skinned kinds of Grapes will require frequent examination for decayed berries, damp being their greatest enemy, which should be expelled as much as possible by fire heat in the daytime when ventilation is given, turning off the heat at night.

PLANT HOUSES.

Pelargoniums of the Show, Spotted, and Fancy varieties that have been shaken out and repotted and placed in pits or frames, should at once be transferred to their winter quarters. They should be raised to within a foot or two of the glass, allowing plenty of space between them, and when the shoots are 3 or 4 inches long they should be tied out. Water carefully, only giving sufficient to keep the foliage in good condition; if kept wet the plants root badly, and too much growth in the leaves is induced. Zonal Pelargoniums that have been some time flowering should be encouraged with weak liquid manure, and be given a light position. Zonals grown in 6-inch pots for winter flowering, and fully hardened by exposure to the sun and air, should now be placed under cover. Place them in a light airy house or pit, and when wanted in bloom a temperature of 50° at night should be provided them. Solanums that have been planted out must now be lifted and potted, 6 or 7-inch pots being the most serviceable, using ordinary loam, and pot firmly, soaking well, and place on the north side of a wall, preferably in frames, as the lights can then be placed over them when there is danger of frost.

Salvias, Heliotropes, and other greenhouse plants of similar character standing outdoors must be conveyed under cover before frost, assigning them a light airy position and a temperature of 45° to 50°.

Encourage Cyclamens to make free growth in an intermediate temperature. Chrysanthemums should be finally staked and trained, the ordinary upright bush fashion being best for general purposes, only using sufficient sticks to keep the plants in form. To insure good blooms the small lateral shoots should be removed from the principal, and the blooms must be thinned to a single bud to each shoot, which should be done as soon as they are large enough. Give plenty of liquid manure, and if green aphides attack them promptly apply an insecticide.

Hyacinths, Narcissuses, and Tulips should be potted, plunging them in a bed of ashes under a wall where protection can be given from frost, and allow them to remain there until well rooted.

THE BEE-KEEPER.

HONEY EXHIBITION AT DUNDEE.

THE East of Scotland Bee-keepers' Society held its annual Exhibition at Dundee on August 31st and two following days. Notwithstanding the unfavourable nature of the season the display was unusually full and of splendid quality. Many of the leading bee-keepers in the lowland districts were unable to stage a single exhibit, but those from the interior and highland districts came forward in force with large and well-finished lots. Altogether about 2000 lbs. of honey were staged, and every class was well competed in. The most striking exhibits were those in the classes for the most artistic displays over and under 100 lbs. Our contributor, Mr. Raitt of Blairgowrie, was first in both classes, and his exhibits were justly admired for their excellent finish and tasteful arrangement. Part of the same lots took two first prizes at the great Preston Show in the following week, and there elicited many comments highly flattering to Scottish bee-keepers. Altogether there were seven entries in the display classes, and in all the quality of the honey was very fair. The poor taste shown in the arrangement of some entries where shelves and stages were relied on, received a check in the awards of the Judges in favour of those exhibiting less carpentry work, but more variety in the size, form, and decoration of the sections and glasses of extracted honey.

The exhibit of D. W. Soutar of Tannadice was given the second place, and was of splendid quality, as were also his other exhibits in the classes for single supers, sets of sections, and glasses of extracted honey. His 30-lb. single super was entirely of Heather honey, and has never been excelled at any previous Show at Dundee. It had evidently been got in a very short time, as its well-finished parallel combs were of the most delicate quality. Altogether it was perfect as a single super with one exception—it had been removed so suddenly from the hive that the cut cells had not been dried up by the bees.

The splendid supers exhibited by Richard MacGregor, Inchmarlo, were all of Heather, and, as usual, of fine colour and finish. One of his supers contained a very beautiful comb of Heather honey in the form of a heart with a Latin cross in the centre, the interstices being neatly filled in with Heather blooms. Mr. MacGregor was first as usual with his extracted Heather honey, as C. Carnegie of Marykirk was with a fine sample of Clover honey. Some of the exhibits in the

extracted classes were very dark, and gave evidence of an origin rather animal than floral. Considering, however, the uncommon prevalence of aphides this season, and consequent abundance of so-called honeydew, it is gratifying to find that so little of this spurious honey was brought forward. Its sale can only damage the interests of honey-producers, and its exhibition should be strictly discouraged by judges.

In the classes for living bees the Exhibition was unusually full, no less than ten observatory hives being staged, containing bees of four different races—blacks, Italians, Cyprians, and Syrians. Besides these there were five neat nests of humble bees and one enormous "byke" of wasps. Several of the observatory hives presented novel features in the direction of an attempt to keep the combs in their natural position side by side, while rendering them capable of individual inspection. The one exhibited by the Secretary, Mr. Warden, accomplishes this by having the hive double the usual height, and so arranged that the padded quilt could be raised to the top, and any separate frame thereafter lifted to a position open to inspection. That of Mr. James Lorimer, which was entirely of glass and exhibited in an unfinished state, is similar in principle to that of Neighbour.

Mr. Valesian Novitzky, Pitlochry, exhibited a beautiful model of a Russian log hive tenanted by Ligurian bees, and having a card attached explaining the method of taking honey without destroying the bees.

In the hive and appliances department there was a large display and keen competition. The prize for the best hive went to Mr. Morrison, Bridgend, Perth, for a rather expensive hive, presenting no very novel features, but indicating great thoughtfulness and precaution on the part of the maker. In extractors there was keen competition, those of Messrs. Coghill and Kinnear being almost exactly alike, taking first and second places. Both admit of taking the frames as they hang in the hive, and are fitted with a novel set of gearing. They are marvels of cheapness at a guinea. Notwithstanding the large quantity of honey staged, and the difficulty of transacting business in such crowds as always visit this Exhibition, it is satisfactory to know that Mr. Warden, the indefatigable Secretary, was able to sell nearly everything entered for sale, and that at fair prices.

The Society has also held Exhibitions this season at Forfar and Arbroath, and honey shows are now so popular in the district that nearly all the local horticultural societies have added prizes for honey to their schedules.

THE BLACK BEE AND RED CLOVER.

IN reply to a query by "EAST RIDING," it is generally conceded that the black bee is unable to work upon the bloom of red Clover, although when other flowers are scarce it may be seen encircling the bases of its petals, no doubt attracted by the scent of the nectar within. The ligula, or tongue, of the Ligurian is slightly longer than that of the black bee and more hairy. This fact has been brought to light by numerous experiments, notably by those of Professor Cook. A simple machine has been patented in America for measuring the length of the bee's tongue. It consists of a vessel covered with wire cloth, and containing honey or syrup placed at certain distances beneath the gauge; and a small index finger revolving upon a circular disc, finely graduated, denotes the length of the tongue when sipping the food.

The Ligurian bee can work to a certain extent upon the red Clover bloom, but greatly prefers the white. Indeed, in our experience the second crops of the red are those which are chiefly visited, and we remember some years ago, during an extremely cold and wet summer, that the red Clover crops failed to produce seed in all the country around the neighbourhood in which we had some dozen stocks of the Ligurian bee located, with one exception only, and that was within a mile of our own apiary, where the crop produced abundance of seed. Upon any fine day, say in August or early September, if the Ligurian bee exists within a distance of three or four miles, it may be seen busily at work upon the red Clover, chiefly, however, on the smaller blooms and petals, and the same remark applies to the first cross of hybrids.

We would, therefore, advise "EAST RIDING" by all means to carry out the proposed plan of introducing the Ligurian variety of the honey bee into the neighbourhood, since it is far more prolific and a better honey-gatherer than the black.

THE DERBYSHIRE BEE-KEEPERS' ASSOCIATION SHOW.

AN interesting and useful Exhibition of the apian industry and its produce, promoted by the Derbyshire Bee-keepers' Association, was held at Derby on the 6th and 7th inst., in the grounds of the Derbyshire Agricultural Society. The President of the Association is the Duke of Devonshire, and its Vice-Presidents include a number of the leading county gentlemen, who take a practical interest in bee

culture. The Treasurer is Mr. Walter G. Copestake of Derby, and the Hon. Secretary Mr. H. V. Edwards, Ockbrook, Derby. The present Exhibition is the first one of any importance held by the Association. This being so, it cannot but be regarded as an unqualified success. The hives were a first-rate collection, constructed chiefly of the plainest and most economical materials, but evidently excellently adapted for rearing purposes. A cheap hive made from old materials, costing altogether 2s. 3½d., and the labour of which was stated to be only four hours, was shown by Mr. W. G. Copestake, surgeon of Derby, and sold during the Show. The show of honey was considerably larger than had been anticipated from the badness of the year, and the quality seemed splendid. There was a display of appliances for extracting the honey, which attracted considerable attention. Mr. H. V. Edwards showed a new extractor known as "Edwards' Improved Extractor," which holds four combs, and takes any size, from a "Woodbury" to a "Langstroth," and is fitted with a strainer. The price is 30s. Mr. J. Best, of the Witham Apiary, Boston, had a quantity of section supers, honey extractors, comb foundations, and other appliances on view, and he also had for sale most of the standard books on bee-keeping. As regards the bees, which were chiefly contributed from the county, they were very fair indeed if every adverse circumstance is taken into consideration, and doubtless next year's Show will be a considerable advance on the present one. The Judges were Mr. R. R. Godfrey of Grantham, and Mr. Yates of Grantham, both of whom are well known for their intelligent acquaintance with bee culture. At intervals during the day Mr. P. Cotton of Olney, Buckinghamshire, an "expert" of the British Bee-Keepers' Association, gave, outside the tent, practical illustrations of manipulating with live bees, showing the best methods of driving, making artificial swarms, transferring combs from straw skeps to bar-frame hives, finding queens, &c. The manipulations afforded a great amount of information to visitors.

LIST OF AWARDS.

The following were the successful competitors:—

HONEY.

Class 1.—For the best stock of bees, of any race, to be exhibited with their queen in observatory hives. First, Rev. W. Humphries, Long Lane Vicarage; second, H. V. Edwards, Ockbrook, Derby.

Class 2.—For the largest and best exhibit of super honey, the produce of one apiary during 1882. First, H. V. Edwards; second, A. E. Rawlins, Coalville.

Class 3.—For the best twelve sections. First, H. V. Edwards; second, Dr. Ogle.

Class 4.—For the best honey in the comb. First, Isaac Potter, Spondon.

Class 5.—Best run honey in glass jars. First, J. Birtles, Norton, Sheffield; second, W. Handby, Hasland, near Chesterfield.

HIVES, ETC.

Class 6.—Best frame hive with arrangements for summer and winter use, price not to exceed 10s. 6d. First, C. Foxon, Croft, near Leicester; second, Abbot Brothers, Fairlawn, Middlesex; third, W. Handby; fourth, J. and G. Haywood, Derby.

Class 7.—Best hive made by a cottager, on the moveable-comb system. First, W. Handby; and special prize given to J. Birtles.

Class 8.—For the cheapest, neatest, and best super for harvesting honey in the comb. First, Abbot Brothers; second, W. Handby; third, Abbot Brothers.

Class 9.—Best collection of hives and bee furniture. First, J. Best, Witham Apiary, Boston; second, J. and G. Haywood; and special prize given to W. Handby.

THE HONEY CROP IN AMERICA.

THE outlook for the American honey crop of 1882 is only little better than that of 1881. New York State, a leading honey-producing centre, will run short of its general good average, but this deficiency will be compensated by gains in Illinois, Michigan, and other western States which produced less than usual in 1881. California promises a quarter of an average crop this year, against a total failure in 1881. This will constitute the surplus over the quantity of honey marketed in 1881. The heavy honey year was 1878. The crop has not equalled the output of the bees since that date. Mr. Joseph M. McCaul, who has just returned from a visit to the leading bee-keepers of the Golden State, states that, placing California's crop of honey in 1878 at 720,000 lbs., about a quarter crop, as above stated, may be looked for there this season, some 180,000 lbs. The taking-up of alternate sections of land in California for grazing and allowing sheep to range across the intermediate plots tends to destroy the blossoms on which the industrious bee has depended. A fire swept across a county or two in Southern California two years ago, and all verdure was destroyed. This discouraged the bee-keepers as well as the bees, although by next season it is reported that blossoms will be fairly plentiful once more. This explains the failure of the honey crop in that State this year. But the probability of recurrences of fires, together with the grazing trouble, points to the steady reduction of the honey product in California, unless measures are taken to cultivate bee food in the canons and elsewhere, which plan is meeting with serious consideration with California bee-keepers. The falling-off in the honey crop in New York State in 1881, where the product had heretofore been uniformly large, was due to cold weather in June delaying the blossoming of plants. Later a dry season continued the damage already done, so that the western States alone this year are ex-

pected to present average crops. New York and California being responsible for a large proportion of the honey produced in the United States, the importance of knowing the situation in those regions is at once perceived.—(*Irish Farmers' Gazette*.)

TRADE CATALOGUES RECEIVED.

M. Mulié, Neuville-en-Ferrain, Toureing (Nord), France.—*List of Strawberries, Potatoes, &c.*

Boulton & Paul, Norwich.—*Illustrated Catalogue of Garden Appliances.*

Robert Parker, Tooting.—*Catalogue of Herbaceous Plants, Fruit Trees, &c.*

Messenger & Co., Loughborough.—*Illustrated Catalogue of Horticultural Buildings.*

H. Cannell & Sons, Swanley, Kent.—*Autumn Catalogue of Soft-wooded Florist Flowers.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (C. L. & Son).—A new edition of the "Fruit Manual" is in course of preparation, and will be published before the next fruit season. Mr. W. Thomson's "Practical Treatise on the Cultivation of the Vine," price 5s., published by Messrs. W. Blackwood & Sons, Edinburgh and London, will probably meet your requirements. The "Vine Manual" published at this office, price 3s., post free 3s. 2d., also contains full cultural particulars. (*H. J. G.*)—The "Gardener's Dictionary," which can be obtained from this office, post free 8s. 3d., appears to be the work you require; it gives a list of all the most important plants in cultivation, with a brief review of their culture and other useful information. The word "noisette" should be pronounced noaset. (*G. C. S.*)—"The Greenhouse," published at this office, will suit you. It can be had free by post for ten penny stamps.

Guide to Hampton Court (M. F.).—The guide to which you refer can be procured from Mr. Graham, Superintendent, Hampton Court Gardens.

Alexandra Peach Failing (W. A.).—This variety is of hardy constitution, and the failure in the ease of your trees is doubtless due to the stock being unsuitable. The remedy you propose, however, cannot be recommended, as it would lead to results even more injurious to the tree. The best plan would be to endeavour to procure another tree on a different stock.

Shrubs for Shaded Border (Willesden).—Common Laurels will no doubt succeed the best in such a position as that you describe, and the greatest portion of the border should be planted with them. In addition, to diversify the appearance, a few plants of the following might be employed:—*Euonymus europæus*, *Leycesteria formosa*, *Berberis aquifolium*, *Berberis Darwinii*, *Ruscus aculeatus*, *Symphoricarpos racemosus*, and for the fore part of the border *Hypericum calycinum* will succeed well.

Spruce Firs Dying (Gertrude H.).—We, too, have been puzzled as to the cause of death of many, and the disfigurement of most of our common Spruce. The affection being so general in the one season will scarcely admit any theory of parasitical injury being entertained, and we have little doubt now that the injury is from the effects of the two very severe winters we lately experienced. We advise intending planters to make more use of the Douglas Fir, as, although it has not entirely escaped the affection alluded to, it is, as far as our experience goes, hardier than the common Spruce, and of much quicker growth.

Treatment of Pelargoniums (Sol.).—You do not say whether the Pelargoniums are of the Show, Fancy, or Zonal types, but probably they are the first-named. If that is the case the most likely cause of the leaves turning yellow and falling is that the house has been kept too close, and perhaps also water has been too freely supplied. The remedies for either of these evils are obvious. Should the plants be infested by aphides, as is also probably the case, fumigate repeatedly until the pests are destroyed. When the growth is thoroughly ripened is the best time to cut them in if the plants are too large.

Climbing Roses (M. C. B.).—If the variety that has been already employed succeeds well you cannot do better than replant some more of the same. To these you may add any or all of the following according as a large or small collection is required—*Gloire de Dijon*, *Climbing Devonensis*, *Brennus*, *Charles Lawson*, *Chénédoie*, *Général Jacqueminot*, *Madame Plantier*, *Paul Ricaut*, *Paul Verdier*, *Amadis*, *Thoresbyana*, *Félicité Perpétuelle*, and the *White and Yellow Banksian* Roses. The best position for *Tropæolum speciosum* would be a cool moist wall with a north aspect. Frequent forking the ground and burning the roots removed is the only way to exterminate the Bindweed.

Watering Vines (J. T. S.).—In the present issue of this Journal are several communications from practical gardeners fully corroborating your experience in regard in supplying water to Vines when the Grapes are colouring. It is

often advised to discontinue watering the border when the fruit is ripening, but this is carried to the extreme, and there can be no doubt that moderate supplies are beneficial until the wood is thoroughly matured. Of course this especially applies to borders inside the house, as those outside usually have sufficient naturally at this time of year, indeed frequently too much in districts where the rainfall is heavy, and consequently they need protection by shutters or some similar contrivance.

Roses for Buttonholes (W. W. R.).—No Roses are equal to the Teas for this purpose, but Moss Roses are often acceptable. Hybrid Perpetual Roses are too large, Général Jacqueminot being perhaps the most useful, and we think fifty plants of it would be more profitable than one plant each of any fifty varieties that could be selected. Teas, however, are the most suitable, and it will be better for you to have a number of plants of a few varieties than a large number of varieties represented by one or two plants each. For roofs and walls grow Maréchal Niel, Gloire de Dijon, Madame Trifle, and Cheshunt Hybrid. Near walls and in other positions grow Niphetos and Isabella Sprunt in large numbers. Madame Falcot, Lamarque, Madame de St. Joseph, Marie Van Houtte, Safrano, Mons. Furiado, and Catherine Mermet are also suitable. Some others may be equally good, but we have already named too many, as those who grow buttonhole Roses for sale find it to their advantage to grow few varieties. A number of the Tea Roses should be grown under glass, the others in the open air, to be protected if needful during the winter months. Some of the most hardy of the Teas are Madame Berard, Bouquet d'Or, and Madame Bravy. Mrs. Bosanquet is also suitable for outdoor culture, and the white Boule de Neige and Baronne de Maynard afford a profusion of white flowers, but not tea-scented. They will succeed well in your soil on the Manetti stock.

The Cucumber Disease (R. Potter).—The form of disease that has ruined your crops is, we regret to say, incurable, at least it has baffled the efforts of the most skilled gardeners and best Cucumber growers who have attempted its extermination. You appear to have done all in your power to save your plants and crops, and we can only suggest that you cease attempting to grow Cucumbers in the house for two years, and endeavour to produce a supply in frames or hotbeds. We have known cases where it was impossible to grow Cucumbers in a disease-stricken house while the plants in frames flourished, but this is not always the case. The only practical mode of maintaining a supply of fruit where the disease exists is to keep on constantly raising young plants, and let each, if they will, bear two or three fruits before the disease develops into a virulent form. If you would like to read much that has been published on this form of disease you will find it in vol. xx. of the Journal; if you do not possess this volume the following numbers, which can be had from the publisher in return for 3½d. each, will answer your requirements—524, 526, 529, 530, 532, 534, and 536. No. 720 contains illustrations of the Cucumber-root disease, which will afford you instruction.

Covering Vine Borders (J. A.).—The outside border of the house, started on the 1st of December, should at once have shutters placed on, especially as they are of glass, which will prevent the soil being soaked and cooled by the autumn rains, and retain the heat of the soil much longer. We presume the Vines, now that the wood is ripe and the leaves down, have been pruned; if not it should be attended to at once, so as to allow the Vines to have a season of rest before starting. The other Vines that are not ripening the wood well would be benefited by a little fire heat by day with free ventilation, turning the heat off at night, and maintaining a dry condition of the atmosphere. Keep the laterals closely stopped. The shutters may now be placed on the borders, which will aid the ripening of the wood by preventing the border being saturated by heavy rains. Too much bone dust would affect the Vines injuriously by inducing too vigorous a growth, but it is more likely the border is too wet and cold. If by "muffled" you mean that you employed some substance on the glass that would shade or break the force of the sun's rays, that would certainly affect the Vines injuriously, as too much light cannot be afforded them, except when the sun is very powerful.

Skeletonising Leaves (M.).—Nearly all leaves may be skeletonised, but some require a longer time than others to become macerated. For instance, the seed vessels of the Winter Cherry, Henbane, and Poppy require a fortnight or three weeks if the weather be hot. Leaves of Ficus elastica (Indianrubber Plant) and Magnolia grandiflora require several months; leaves of the Tulip Tree, Poplar, and Maple a fortnight; leaves of the Holly and Ivy two or three weeks. Ferns require a long time, and so do the leaves of Beggars' Broom, Butchers' Broom, the Orange, Lemon, and Camellia. Great care must be taken in choosing the leaves, as the smallest speck spoils one. Many more should be placed in the water than are needed, as not more than one in twenty will be perfect. The time required depends on the weather. Beginners examine them too soon. The leaves should be put into soft water in a sunny situation, taking care that they are covered with water. Evergreen leaves may be skeletonised at any time, but deciduous leaves not before the end of June or beginning of July. Seed vessels must be operated upon when nearly ripe. When quite ready for skeletonising put the leaves into boiling water to remove the offensive smell. Remove the scum from the water. Brush off the pulp with a rather hard brush. If the leaves are tender bump them gently, which removes the pulp without disturbing the nerves of the leaves. Pour clean water over them until quite clean; put them on blotting paper to dry—a piece of glass is useful to brush them on. Tender leaves should be floated in water and caught on a card, as are fine Seaweeds. Bleach with chloride of lime and then wash them thoroughly with clean water, otherwise they become yellow. It is better not to bleach them until required for setting up. Thistles and Teazels look well when bleached and aid much in arranging a group.

Flower Beds, Westminster (W. B. H.).—We have applied to the Superintendent who has charge of the flower gardens in Palace Yard, Westminster, and are informed that they were laid out fifteen or sixteen years ago, and that he does not know by whom the beds were designed.

Names of Fruits.—Several parcels of fruits have been received, but all of them being still unripe an examination of them is postponed for the present.

Names of Plants (G. O. S.).—The specimens sent are quite insufficient for identification. (H. M.).—The fungi sent are true Mushrooms—*Agaricus campestris*. (W. R.).—1, *Asplenium viviparum*; 2, *Adiantum assimile*; 3, *Blechnum brasiliense*; 4, *Cheilanthes elegans*. (N. S.).—1, *Rudbeckia Neumanni*; 2, *Dahlia Paragon*; 3, *Dahlia glabrata*.

COVENT GARDEN MARKET.—SEPTEMBER 20TH.

PRICES without alteration generally, Kent Cobs only excepted, which have been selling freely at a good advance. All other goods firm.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	2	0	7	0	Lemons.....	case	20	0	30	0
Apricots.....	doz.	1	0	1	6	Melons.....	each	2	0	3	0
Cherries.....	½ sieve	0	0	0	0	Nectarines..	dozen	2	0	10	0
Chestnuts.....	bushel	0	0	0	0	Oranges.....	100	6	0	10	0
Currants, Black..	½ sieve	0	0	0	0	Peaches.....	dozen	2	0	10	0
" Red....	½ sieve	0	0	0	0	Pears, kitchen ..	dozen	0	0	0	0
Figs.....	dozen	0	6	1	0	dessert.....	dozen	1	0	2	0
Filberts.....	lb.	0	6	0	0	Pine Apples, English	lb.	3	0	4	0
Cobs.....	100 lb.	50	0	0	0	Raspberries.....	lb.	0	0	0	0
Gooseberries.....	½ sieve	0	0	0	0	Strawberries....	lb.	0	0	0	0
Grapes.....	lb.	1	0	3	0						

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	0	Lettuees	score	1	0	1	6
Asparagus.....	bundle	0	0	0	0	Mushrooms	punnet	1	0	1	6
Beans, Kidney....	100	1	0	0	0	Mustard & Cress ..	punnet	0	2	0	3
Beet, Red.....	dozen	1	0	2	0	Onions.....	bch.	0	6	0	0
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	3	0	4	0
Brussels Sprouts..	½ sieve	0	0	0	0	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Peas	quart	0	10	0	0
Capsicums.....	100	1	6	2	0	Potatoes.....	cwt.	6	0	7	0
Carrots.....	bunch	0	4	0	6	Kidney.....	cwt.	6	0	8	0
Caniflowers.....	dozen	2	0	3	0	Radishes....	doz. bunches	1	0	0	6
Celery.....	bundle	1	6	2	0	Rhubarb.....	bundle	0	4	0	6
Coleworts.....	doz. bunches	2	0	4	0	Salsafy.....	bundle	1	0	0	0
Cucumbers.....	each	0	4	0	6	Scorzonera	bundle	1	6	0	0
Endive.....	dozen	1	0	2	0	Seakale.....	basket	0	0	0	0
Fennel.....	bunch	0	3	0	0	Shallots.....	lb.	0	3	0	4
Garlic	lb.	0	6	0	0	Spinach	bushel	3	0	0	0
Herbs.....	bunch	0	2	0	0	Tomatoes.....	lb.	0	2	0	6
Leeks.....	bunch	0	3	0	4	Turnips	bunch	0	6	0	0



POULTRY AND PIGEON CHRONICLE.

THE INFLUENCE OF CLIMATE ON CULTIVATION.

In considering this subject it is our object to state as concisely as possible the effect of climate on the successful production of the plants and cereals which are chiefly cultivated; to consider the agricultural practices prevailing in various districts; also to point out the variations prevailing in the rotations of cropping, the system of cultivation and manuring of crops, which are more or less influenced by climate. We shall endeavour also to keep steadily in view those other elements often predominating over those of climate, and are principally concerned in arranging our farming rotations.

It will be found in all parts of the kingdom that the demand for certain crops, together with ample supplies of manure, render farming systems very much alike in the immediate neighbourhood of large towns and railway stations. But it is principally in the inland districts where the features of distinct systems are the most noticeable and more generally adhered to. We usually find that those crops which are most cultivated are the most suitable to the soil and climate. Still there are many exceptions to this practice, owing to what may be termed the economy and frequently the necessities of cropping. For instance, Turnips are well known to thrive best in the cooler climates of the kingdom and where the rainfall is more persistent. As it is found the climate of Scotland and the western counties of England are more suitable for the growth of Turnips than Norfolk and other eastern districts. We have often thought it a curious circumstance that Turnip culture should have commenced originally in the eastern counties, and then become a more important produce in the north and west. Still it is a singular fact that in no part of Scotland is a fourth part of the arable land devoted to the culture and growth of Turnips as is the case in Norfolk. It is an expensive crop to cultivate, and when raised to such an extent as one-fourth of the arable land it necessitates a correspondingly greater breadth of the higher-priced cereals. But this is a resource which neither the Scotch nor the west of England farmer can resort to. Strictly speaking they cannot, except in the Lothians, afford to grow so large a breadth of Turnips as the Norfolk farmer on account of not

being able advantageously to grow so large a breadth of Wheat or Barley, which have for a long period been the most valuable of the cereal crops. Other beneficial products, however, such as Potatoes, intervene and enable the Scotch farmer to pay as high rent for land of equal fertility as the Norfolk farmer.

We must now refer to what chemistry will teach the home farmer, for thereby he can learn the changes which are enforced by the laws of climate and the conditions under which the various sorts of plants flourish and yield their different products in the greatest abundance and perfection. It must be understood that, other things being equal, the force and vigour of vegetable growth is largely in proportion to the temperature of the atmosphere and soil. It is well known that plants grow with much greater rapidity in summer than in spring in tropical countries than in temperate climates. It is ascertained that the higher temperature enables plants to assimilate a larger portion of food in a given time. Plants may, therefore, be said to be more grateful for a supply of manure when applied in summer than for spring growth. For instance, the vegetables grown by the market gardener are said to be forced by manure, because the ordinary kinds are grown during the colder period of the year. Again, not only are plants enabled to assimilate a larger quantity of manure during the summer season, but they also appear to have much greater powers of absorbing food from the atmosphere. This, however, may arise from two causes, as it is assumed that ammonia, a most fertilising agent in producing vegetable growth, exists in much greater abundance during the warmer season, its quantity in the atmosphere being in a great measure regulated by that of its water or vapour, which is always greatest in the summer season. Another cause of the greatest power possessed by plants of absorbing ammonia during warm weather is attributed to the greater vigour of the plants and their enlarged leaf surface. When manure is abundant and cultivation correct the farmer should endeavour to select those plants which have the capacity of yielding a growth or crop in proportion to the quantity and quality of the manure applied; but this can only be fully obtained when their period of growth continues during the summer season. For instance, we may state that these conditions are fulfilled in flood meadows and those under irrigation, also in a field of Cabbages or similar vegetation, for both grow well as long as the temperature is suitable for vegetable growth, and both possess great capacities for growth under liberal treatment. It may also be noted that in case of irrigated meadows, even in the early spring and winter months when ice prevails, the grass will grow under it to a certain extent whilst the meadows are in flood, for the simple reason that the temperature is higher under the ice and water than in the atmosphere above.

The quantity of plant food to be obtained from the atmosphere appears to depend in a great measure upon the capacity of plants and the extent of surface they expose in the form of healthy and luxuriant leaves which they can maintain during the period of growth. Under favourable conditions we may notice that grass and the Clovers produce a continual succession of leaves, which renders them much less dependant on a supply of food to their roots when derived either from manure or natural fertility of the soil. Again, take the case of the natural vegetation of woodlands, including our various plantations of the Fir tribes, which yearly obtain a large amount of sustenance through the large leaf surface exposed during the summer months, and it is consequently seen the profitable production of timber trees, although planted upon the most worthless and otherwise useless soil, even in the highest altitudes and most exposed situations. With regard to our forage plants, within certain limits the strength of vegetation relies upon the temperature if a due supply of moisture is present, but when moisture is deficient the most abundant supplies of food in the shape of manure are of little avail in promoting growth.

It is, therefore, to be noticed that much of the skill of the home farmer as well as farmers in general consists in selecting those plants and cereals which are most suitable to the climate, as well as in adopting those special modes of cultivation which tend to compensate for deficiencies of climate; and with due observation the farmer may generally rely in a great measure upon the products of nature, and the best examples of cultivated productions upon any particular district in which it is his fortune to be placed. For instance, the blowing sands and rocky seacoasts are occupied by those species of grasses which can resist the extreme aridity of the strata in which their roots are working. Again, it is only on deep loamy and naturally fertile soils that the finer and more luxuriant grasses flourish in dry climates. Deep-rooting plants like Lucerne, Clover, and Sainfoin are less under the influence of drought, and are necessarily objects of culture in all our driest climates. On the other hand, the more rainy districts of the west of England render them specially genial to the

growth of the shallow and surface-rooted varieties of grass, which are consequently an economical means of restoring and maintaining fertility to land previously exhausted by cropping. Italian Rye Grass furnishes an excellent and practical illustration of the influence of climate, and it may also be said to be the cause of one of the peculiar contrasts between the rotation of Norfolk and that of the west of England and in Scotland, for in these latter districts the climate promotes its continuous growth throughout the season, whereas in the drier climates of the eastern and southern counties frequent and liberal dressings of liquid manure or nitrate of soda only enable it to produce a rapid successional crop.

Pasturing seeds successfully for two years is another system which is very generally adopted with success as a means of restoring fertility in Scotland and districts of the west of England; in fact such a practice is often covenanted for in leases, and is well calculated to maintain the productiveness of the soil and husband its resources. It must, however, be considered best adapted as a system or rotation upon good useful loams which can maintain the herbage in a growing state. There is a point to be considered by the home farmer in this matter, which is to him of some consequence. Very shallow and weak soils do not generally support certain grasses, such as ordinary Rye Grass, the second year, and it is only when indigenous varieties appear, or when the few of the best kinds of permanent grasses are sown, that the produce in the second year becomes advantageous. As pasturing seeds for two years ought to be regarded, although in a lesser degree, as a substitute for improving the land like consuming a crop of Turnips for two years in succession, the advantage at any rate is found in its requiring no expense in manure and cultivation.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—All the horse power and also that of steam should still be continued on the autumn tillage of land which may have couch, black bent, or onion grass upon it wherever the land is not under crop, such as young Clover seeds and Clover leas. All the rest of the land should be very carefully examined to ascertain what weeds exist which autumn tillage will destroy, whether it is intended for Mangolds, early Barley, Potatoes, Carrots, Peas, and Beans. We wish especially to call the attention of the home farmer to the advantage of forking out grass by hand labour. If there is but little of it so much the better, and it should not be allowed to remain. It is no use to say that the grass is but little, that it will not injure any crop. That may be true for the time being, but it will be sure to increase if allowed to remain while the land is under crop, especially where it has been liberally manured. There is no plan which saves so much horse labour as forking out grass at every opportunity; for instance, in preparing the land for Potatoes. During many years we never thought of giving the land much costly tillage, our plan being after harvest as soon as the stubble Turnips were seeded was to plough the land a fair depth without working down, and after about two months any bunches of couch which may have started were forked out. The land was allowed to remain without working during the winter, and again in February, carefully forking out any lumps of couch which may be seen, and then only working the land with iron harrows twice, crossways and transversely, just before ploughing and planting, which was done simultaneously, the manure being strewn by hand in the furrows with the sets at planting time. We always avoided yard or town manure, because the laying-out takes time and frequently treads the land and tracks it in adverse weather, seriously injuring the condition of the land for planting. Thus it will be seen that the actual work of preparing the land is reduced to a minimum, the horse labour being only two ploughings and five harrowings, and the hand labour only two forkings of couch, planting the sets, and hand-strewing the artificial manure, guano being found the most successful. In carrying out such a course of management and cultivation our farm was always clean; for the same system of forking was continued under all circumstances. We never employed more than four horses except an odd horse or mule to each hundred acres of arable land, and yet no steam cultivator was ever required or employed on the farm, no regular fallow being made for a period of twenty years except for Mangolds, and these generally were grown after stubble Turnips fed-off by sheep in the early spring or winter months.

Hand Labour.—The labour question in most districts is fast becoming a very serious and costly affair. Education appears to have taught the rising generation of the labouring classes that anything is better than working on the farm, therefore large numbers of the most enterprising youths are employed in the towns, any employment being considered better than agricultural labour. We therefore ask the home farmer to consider how the habits of the farm labourers can be improved, by exciting amongst them a spirit of emulation in their various departments of labour, such as ploughing, rick-building, and thatching. Within our recollection there used to be labourers' encouragement societies existing in nearly every district, by which prizes were offered for the best ploughing, for the best ricks built

and for the best thatching, and awarded to men who formed part of the staff of labourers on the particular farms where they worked. Many of these excellent associations have, however, fallen into disuse, and very unfortunately, for they are at present more needed than at any former period. It is now not only more difficult to get labour properly performed on the land of various kinds, but it is equally difficult to get a fair day's work done, although the wage is higher than it has ever been before, and which wage will purchase more of the workmen's family necessities than at any former period. In our district the workmen on the farm are encouraged by prizes for various kinds of farm work, and rewards given for long and faithful servitude, and we believe the idea is extending, as it has an excellent effect; for unfortunately at the present time there is not only a strong desire on the part of the workmen in various localities to do as little as possible for their wages, but a hankering after change possesses them, so that labour now has become more casual than ever. This, however, the home farmer may meet to a certain extent by a sufficient number of cottages on the estate being made available to accommodate men and their families, to do the work on the farms of every kind, and by a system of living which shall fix them in their position as long as possible, but at any rate it should be for not less than twelve months.

Live Stock.—Cattle and sheep are extremely high in price, the latter especially, and we cannot help thinking that the home farmer should reconsider his position as regards the maintenance of a large stock of sheep, and that it should not extend beyond the actual requirements of the estate and the ornamentation of the parks and pastures of noblemen and gentlemen, especially as nearly all of these have a taste or liking for the sake of appearance to some particular class or breed of animals. This is well; but when we come to take into serious consideration the advantage and benefit to be derived from the keeping of sheep on the arable land, it is time to think about a new departure, and inquiry at any rate into the cost and returns obtained by the feeding or fattening of sheep on arable land, other than the value of their manure. One thing at any rate we feel assured of, that manure can be purchased cheaper than it can be obtained by sheep feeding on the farm; but as we shall return to this subject, and hope on a future occasion to afford reliable calculations upon the cost and expenses as compared with returns obtained by the fattening of sheep. We hope the home farmer will at once discard all former notions and prejudices upon this matter, it being too commonly supposed that it is stock instead of corn which pays the farmer for producing.

POULTRY AND PIGEONS

POULTRY NOTES.

THE entries at the Newnham-on-Severn Poultry, &c., Show, to be held to-day (September 21st), closed as follows:—Poultry, 130; Pigeons, 340; Rabbits, 50. Considering that the first prizes are only 15s. in the poultry classes and 12s. 6d. in the Pigeon and Rabbit classes this entry is extremely high, and shows that there must be confidence in the management of the Show. We believe that a second Judge will be obtained, as Mr. Cresswell is always unwilling to undertake more classes than can be carefully judged.

OUR readers may be interested to hear the sequel of the Warwick frauds. Some of the would-be exhibitors who paid entry fees have lately received the following circular:—

Warwick, 25th August, 1882.

WARWICK DOG AND POULTRY SHOW FRAUD.

SIR,—The promoters of the above Show having been tried, convicted, and sentenced respectively to fifteen and four months imprisonment, it is intended to divide a portion of the moneys found upon the prisoners amongst those persons who paid entry fees.

After payment of the costs incident to the prosecution of the prisoners (which have been considerable), and at the suggestion and with the concurrence of numerous exhibitors of a gratuity to Inspector Hall of the county constabulary, through whose active exertions the prisoners were apprehended, and but for whom they would undoubtedly have evaded justice, and also setting aside a small reserve fund to meet demands at present unknown, the balance in hand will extend to make a return of 6s. 8d. in the pound, being one-third of the entrance moneys paid by each exhibitor, and this can only be paid to them on their giving me a written indemnity.

Be good enough to inform me the amount of entrance money paid by you, and that you concur in the above scheme for the distribution.

I am, Sir,

Yours obediently,

W. B. SANDERSON,

Solicitor to the Prosecution.

We understand that certain exhibitors refuse to "concur in the above scheme" till further particulars on various points are published.

MANY exhibitors will miss the well-managed Oxford shows, where most of the promising chickens of the year used to appear.

An energetic committee are striving hard to continue the annual shows abandoned at Oxford in the neighbouring town of Banbury. It is hoped that a schedule will shortly be issued drawn up on the lines of former Oxford shows for an exhibition to be held about the usual Oxford date.

MEANWHILE we have received the schedule of the Dorchester Show on October 18th and 19th. It also is not unlike that of former Oxford shows, and offers very extended classification—viz., fifty-six classes for poultry and over eighty for Pigeons, besides local classes confined to residents in the county of Dorset. The last Dorchester Show took place during the memorable snow-storm of January, 1881, and was consequently a failure. With such a prize list this Show should make up for the financial loss consequent upon the last. The Secretary is Mr. Charles Parsons.

THE schedule of the Nottingham Show, to be held on October 5th, 6th, and 7th, contains a somewhat unusual regulation—viz., the price of Pigeons and Rabbits must not exceed £10 each. The object of it is of course to exclude a few "well-known and certain winners," and to give a chance to would-be purchasers of procuring good birds at not extravagant prices. We are pleased to see it, and shall watch the result with interest. The Judge of Pigeons is Mr. Fulton, a pretty good guarantee to exhibitors that the birds will be well placed.—C.

OUR LETTER BOX.

Crossing with Game Fowls (J. N.).—Dorkings are decidedly the best breed to cross with Game for table purposes. We have frequently recommended the cross in our pages.

Peacock Moulting (X. F.).—Keep it warm and give generous food. Do not let it out early in the morning if the weather is chilly, but feed under cover with soft food such as bread and ale. Milk porridge made very thick with oatmeal, a little boiled meat cut small, and potatoes.

Stocking a Rabbit Warren (W. S.).—Wild rabbits are better than tame for a warren, and the best time for stocking is early spring. One male to thirty females will soon stock an acre. The number that can be grown depends entirely on the pasturage and the food that is otherwise supplied. If they eat the trunks of established trees it is evidence that the warren is overstocked, and the animals must either be reduced in numbers or the food supply increased. Rabbits will bark young Larches and destroy them—that is, trees that have been newly planted, but they will not attack established trees unless driven by famine to do so. Galvanised wire netting 3 feet above ground will suffice if it is properly fixed below ground also. It is little use sinking it straight down, as the animals are very persevering, and will burrow under it sooner or later. The best mode of fixing is to bend the bottom of the wire inwards, or facing the warren, covering a foot of it 3 or 4 inches deep. They invariably commence scratching within a foot of the fence, and of course, if they come in contact with a layer of wire, their further progress is obstructed; but if there is no such obstacle they will descend for 3 or 4 feet if the soil is light.

Roup (X.).—We can only suggest the application of the usual roup remedies. Begin with a dose of castor oil, afterwards wash the face and nostrils frequently with Labarraque's solution of chlorinated soda diluted with twice its quantity of water. Give also Walton's roup pills as directed on the box. The house where the birds have been should be thoroughly disinfected. If there are any other symptoms than those you have described write again, and we will advise you as to further treatment. We cannot understand the blindness of the recovered birds. Do you mean that one eye remains closed, or that the sight of one eye is destroyed?

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. September.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun. 10	30.001	57.8	55.7	N.	57.2	68.3	49.6	81.1	42.7	—	
Mon. 11	29.725	55.3	54.3	W.	57.3	67.6	45.8	100.6	39.5	0.120	
Tues. 12	29.636	49.3	46.8	N.	57.2	61.4	46.3	83.0	43.9	—	
Wed. 13	29.694	48.6	45.9	N.W.	56.9	62.7	40.3	112.3	38.3	—	
Thurs. 14	29.613	50.9	47.9	N.	55.0	61.6	41.7	102.6	38.8	0.163	
Friday 15	29.753	47.6	46.0	N.	53.8	64.5	37.8	100.3	34.7	—	
Satur. 16	29.919	56.5	51.9	N.	53.3	65.0	39.3	103.6	35.4	—	
	29.763	52.3	49.9		55.8	64.4	43.0	97.3	39.2	0.283	

REMARKS.

10th.—Hazy and dull all day.

11th.—Foggy in morning; dull cloudy day; rain at night.

12th.—Rain and drizzle early; fine and bright about midday; cloudy afternoon.

13th.—Fine, bright, and pleasant.

14th.—Fine and bright early; thunderstorm in afternoon with heavy rain; foggy evening and night.

15th.—Fog early; fine bright day.

16th.—Fine pleasant day, brightest in the morning.

On the whole a fine and pleasant week, but with a good deal of mist and fog in the early morning and at night. Mean temperature about 3° below the average, and nearly 6° below that of the preceding week.—G. J. SYMONS.



28th	TH	MICHAELMAS DAY. Sale of Bulbs at Stevens's Rooms, Covent Garden. 17TH SUNDAY AFTER TRINITY.
29th	F	
30th	S	
1st	SUN	
2nd	M	
3rd	TU	
4th	W	

TREE AND SHRUB PLANTING.

IS the subject exhausted? No; but it is so familiar that I have repeatedly decided everybody must know all about it. Sooner or later, however, this conclusion invariably proves erroneous, and we feel constrained to put forth a helping hand to those who are willing to be helped and are sensible of their need. It is for such that I once more offer a timely word of warning and advice about planting, for the season for this important operation is fast approaching, and success or failure as regards the subsequent health and growth of the trees depends very much upon early planting and close attention to every detail of the work.

In the first place decide forthwith what to plant. Why are you going to plant at all? If for shelter for house or garden, then consider how this may best be done. Sturdy fast-growing trees are undoubtedly best for house shelter, and of such, if the soil be somewhat shallow, dry, and poor, take common Beech, Spanish Chestnut, two of the Willows—*Salix alba* and *S. caprea*, white Birch, the London Plane (*Platanus occidentalis*), the Tulip Tree, wild Cherry, Larch Fir, and Locust Tree (*Robinia Pseud-acacia*) among deciduous trees; and of evergreens common Silver Fir, Austrian Pine, *Pinus insignis* if the position is moderately elevated or on steep slopes or hill-sides, Scotch Fir, and Corsican Pine. But if the soil be deep and heavy, then to the Beech, Plane, Tulip Tree, and Chestnut add the common Oak, Turkey Oak, Scarlet Oak, the handsome evergreen Lucombe Oak, and common Ash, which is not half so much planted as it ought to be, for it soon becomes a fine tree, and its foliage is very beautiful. Never plant for shelter solely with evergreen Firs; the effect is invariably heavy and monotonous. Let evergreens predominate if you will, but blend with them enough deciduous growth to impart variety and summer fullness and brightness. Avoid straight lines and formal belts as much as possible. If a belt is unavoidable, then let its front be made picturesque with boldly projecting clumps, not in mere serpentine outlines, but sufficiently far out to arrest the eye and take it along glades of greenery before the background is reached, and then it will never have the harsh repellent air of an ordinary belt.

Garden shelter may, of course, be imparted by any of these trees, but much may be done in exposed situations by throwing up banks and planting them with shrubs. I have made a perfect screen in this way by using common Holly. At Rosemundy, on the north coast of Cornwall, the garden is admirably sheltered from the heavy gales that so frequently blow there from the Atlantic by banks clothed with Japanese Privet, and

at Battersea Park excellent examples of this easy mode of shelter exist in several parts of the gardens. Such banks also give privacy to roadside gardens, and are less expensive and more ornamental than walls, the inner slope being available for both shrubs and flowers.

If it is intended to plant tree and shrub groups for ornamental purposes, again strive for cheerful combinations and soft flowing outlines. Circular groups are my especial favourites, whether standing alone or in clusters. They should never be less than 30 feet in diameter, unless you are much crippled and confined for space, and when in clusters 10 or 12 feet of turf between them affords ample space for inspection, and nothing can be more delightful than a stroll among them when their occupants are in the full beauty and freshness of spring and early summer. If there is but little lime in the soil Rhododendrons will, of course, predominate. Plant thinly, and put in plenty of Lilies, such as *L. aurantiacum*, *L. speciosum*, and *L. auratum* among them, so as to have a succession of bloom after the Rhododendrons have flowered. Break up the soil deeply and drain it well, for Rhododendrons do not answer in close retentive soil.

Mixed groups are lovely, and we have a rich store to choose from. Here are a few favourites of proved merit:—*Forsythia viridissima*, with golden yellow flowers clustering thickly along its long flexible growth in spring, more beautiful this year than I have ever known it. *Hibiscus syriacus* of varied colours, blooming in autumn. *Ribes*, yellow, white, and crimson, with a double-flowering kind which comes later than the others, but all flower early in the year, as do the *Berberises*, of which *Darwinii* with its rich yellow flowers is best either for clumps or alone. Then there are the *Spiræas*, to which attention has recently been given, and *Weigelas* of various shades of pink; *Hydrangeas*, so beautiful just now; the lovely *Rhus Cotinus*, with soft, downy, rosy-purple inflorescence; *Escallonia maerantha*, a mound of glossy green foliage and abundant bright pink flowers both in spring and autumn; Japanese Privet with bold white flower spikes in summer; the best of the *Andromedas*, which are *A. formosa*, *A. Catesbaei*, and *A. floribunda*; *Kalmias glauca*, *rubra*, and *latifolia*; the tall-growing *Heaths*, *Erica codonoides*, *E. herbaacea*, and *E. mediterranea*. A mixed group of hardy *Heaths* is very ornamental; most of them are fading, but *Allportii*, *vagans alba*, *earnea*, and *rubra*, the Cornish *Heaths*, and the Irish *Heaths* are still good.

Of trees much, except in a general way, cannot be written in this brief paper; but I would strongly advise the more general planting of *Pinus insignis*. It does not succeed in low-lying, cold, damp situations, but it is so beautiful as to be worthy of a trial in all others. At Lamorran, where it has become a timber tree, it has the advantage of being planted upon the slopes of the valley; but its elevation above the sea level is by no means considerable. *Thuja Lobbii*, of which I planted some hundreds about eleven years ago, proves very ornamental near the sides of carriage drives and among deciduous growth. Some of them are upwards of 20 feet high, probably nearly 30. *Cupressus Lawsoniana* was also planted in considerable numbers at the same time. It has thriven and is ornamental, but is inferior to the *Thuja*. Of the *Piceas* *Nordmanniana* has taken the lead. The growth is free, stout, handsome, and symmetrical, with every appearance of making fine trees; *P. nobilis*, though far behind it, is doing well.

Abies Douglasii evidently requires a deep rich soil. Several have been planted, and all have made tolerably free growth, but the shallow soil does not suit them.

Particular attention should be given to select trees and shrubs suitable for the positions they are to occupy. To plant Conifers near to or beneath other trees is ridiculous, yet I have seen it done by persons professing to have competent knowledge of the work. Hollies and Rhododendrons answer beneath trees so far as to continue healthy and grow freely, but blossom must not be expected. Conifers may in many instances require some shelter, but they also want an airy open position and a pure atmosphere.

The best time for planting is near the end of October or early in November; no favourable weather should then be lost. Plant well then, and there will be very little risk of subsequent failure. "Plant well" is a comprehensive term, pointing to well-drained soil, carefully prepared stations, quick transplantation, little exposure to the air or injury of any kind to the roots, soil well and firmly packed among the roots, a mulching of litter at the time of planting, and due support to the stem at the same time, so that there is no risk of wind rocking and a consequent loosening of the roots in the soil. These are matters worthy of our best attention, for I am sure that they make success almost a certainty and failure an exception, arising from causes altogether remote from the planting.—EDWARD LUCKHURST.

AMONG THE CANTERBURY ROSES.

THERE are some good people who affect to doubt the good influence that exhibitions have in encouraging the growth of flowers. Now I know no place that can better refute such an idea than the good old city of Canterbury. Like most cathedral cities where manufactures have not reached, rejoicing in that *dolce far niente* which seems so consonant with the old walls and the glorious cathedral, it seemed as if no power could wake it out of its sleepiness. No flower shows seemed able to make anything like a firm foundation there; but some few years ago there went to the old city a parson who had for many years been a rosarian, and who has taught both by his practice and writing had shown that his was no 'prentice hand. He found there one or two who were equally ardent in their love for the Rose; and to these three gentlemen—the Rev. H. B. Biron, Captain Lambert, and Mr. Wm. Mount—Canterbury is indebted for having established a most vigorous and flourishing Rose Society. It has brought out other exhibitors, encouraged those who already grow the Rose, has brought some of our largest growers for sale to exhibit there, and altogether has added considerably to the interest with which the Rose is regarded in East Kent.

Two causes led me to visit Canterbury. One was that I was anxious to see the garden of one of the most successful of our new exhibitors—Mr. George Mount of Harbledon; the other was that my valued friend Mr. Biron is about to leave to take the living for years held by his father at Lympne, and I wished before he went to take a last look at his Roses, for he has made Harbledon famous in the Rose world, not only by his own excellent growth, but also because Mr. Mount is his pupil.

Mr. Biron's Roses have had no exceptional advantages of either soil or situation. They are grown on the top of the hill near the church, and are very much exposed to high winds, while the soil is rather of a hungry nature and requires good feeding. Now from, I will not say carelessness, but from the pressure of other matters, they were not so liberally treated last autumn as usual, and as a consequence they have not been anything equal to his in former years, and the trees looked as if they resented the neglect. Orange fungus, too, had been, as in many places this year, very busy. A large quantity of the Hybrid Perpetuals had lost their foliage; and although I do not think that this materially affects the plants for the future, it does detract from their appearance at present; but it is a singular thing with regard to this pest, that neither here nor anywhere else that has come under my notice have I seen a trace of it on the Tea Roses. Here some Teas right in the middle of Hybrid Perpetuals that were badly affected had no trace of it. Probably the readers of the Journal will take note of this and see whether this coincides with their experience. If Mr. Biron has raised no new Rose, to him at least belongs the merit of rescuing a Rose from oblivion and making it famous. I allude to Eugène Fürst, one of the grandest of dark Roses, which had almost passed away unnoticed but for his excellent exhibits of it, taking more than once the National Rose Society's medal for the best Rose in the Show with it; and now the demand for

it is so great that nurserymen are unable to supply it. It is a fine Rose, somewhat like Reynolds Hole, but even richer in colour—that is, in texture, and more constant.

We had a talk over his flowers and his method of growing. In one thing I think he is unique—the manner in which he prepares his Briar stock for budding. Instead of being anxious to secure fibres on the wild stock he pares off everything, and when inserted in the ground it is as bare as a cricket ball; but the result justifies the practice, as his plants have always rooted well and grown vigorously. He had thought highly of Harrison Weir and budded it largely in various ways and on different stocks, but he is compelled to say that it is a poor doer although a pretty flower. We had Madame Gabriel Luizet under discussion, and he showed me what evidently seemed second blooms, while Mr. Mount and others have expressed the opinion that it is a Hybrid Perpetual—a fact which I am happy to corroborate from my own garden, for I have just looked at one of my plants with six blooms on it, and so all I can do is to take off my hat and humbly apologise to him for my rudeness.

From Mr. Biron's garden I walked on to Mr. Mount's a little further on, past the house and grounds of that grand artist Mr. Sidney Cooper, who has made the neighbourhood of the old city known to many, who would have been otherwise ignorant of it, by his grand cattle pieces, who so often in his pictures repose in the quiet meadows that border on the Stour. No external sign marks the home of the Rose at Harbledon, for Mr. Mount is the village blacksmith—not such a one as is described by Longfellow, for it cannot be said of him—

"The smith a mighty man is he,
With large and sinewy hands;
And the muscles of his brawny arms
Are strong as iron bands."

For our friend is a little man in stature, as unlike one's ideal of his craft as can possibly be—spare, and by no means strong; but he is like Longfellow's, a man of good purpose and strong resolution; and so when he went in for Roses, and his preceptor Mr. Biron asked him, Did he wish to excel, and he replied "Yes," he set himself to it in right earnest. His garden is but a small one. It is sheltered and the soil is good: perseverance, skill, and determination have done the rest. What is that rest? Well, here it is. Sittingbourne Rose Show, June 22nd—First prize, twelve vars.; first ditto nine vars.; second ditto, six Teas; first ditto, three trebles; best box and best Rose in the Show. Maidstone—First, nine vars.; first ditto six vars., three trusses each; second prize, six Teas; second ditto, six of one variety. National Rose Society, Bath, June 29th—Second prize, twelve vars.; second ditto, six Teas. Farningham Rose Show, June 30th—First prize, nine vars.; first ditto, six Teas; second ditto, six, same var.; seven-guinea cup, twelve vars., which would also have had the prize for best box in the Show, but was precluded. National Rose Society, South Kensington, July 4th—First prize, nine vars.; first ditto, six Teas; third ditto, six same variety. Canterbury, July 6th—First prize, twelve vars.; first ditto, six Teas; second ditto, three trebles.

Now this I think an unprecedented record in Rose-showing; and when people say the victory must always be on the side of big battalions I can adduce this as a case *not* in point, for Mr. Mount has not all told more than four hundred Rose trees. When I was there, there were still some grand blooms, and I was therefore not surprised to hear that he had taken at Ramsgate on August 16th the following prizes—First prize, twelve Roses; first ditto, three Roses; first ditto, best box; and at St. Peter's, May 30th, first prize, twelve open; first prize, twelve amateurs. Thus out of twenty-eight boxes shown he has gained nineteen first prizes, seven second, and one third—in all twenty-seven. Surely we may say to him—

"Thanks, thanks to thee, my worthy friend,
For the lessons thou hast taught."

And I am sure the good wishes of all true rosarians will go with him in his future course.

From Mr. Mount's I went to his namesake, Mr. W. Mount, the active local Secretary of the National Rose Society, whose pretty Rose garden I have ere now described in the Journal; but its very prettiness has been its fatal gift. It has laid too close to the water, and consequently the plants have suffered; nor has the Tea shed which he put up been as successful as he had hoped, so that altogether he was somewhat downhearted. But this very want of success has led him to fresh determinations. He hopes to secure a place elsewhere, and is already arranging for the plants that are to occupy it. Thus must it be with true rosarians: success in one case encourages to future exertions, and failure to fresh efforts to gain successes.

Captain Lambert is another enthusiastic grower of the Rose,

and in his very pretty garden on the Dover road has a nice collection of excellent plants, more especially Teas, while the Sweet-briar hedge that surrounds his rosery is a delightful feature which might well be copied by others. I had not at the time leisure to visit it, but hope to do so at some other time. The object of my visit was accomplished, and hope it may in some little way prove of interest to the readers of the Journal.—D., Deal.

PATRIE VIOLET.

I AM agreeably surprised to find in this a valuable addition to our already numerous varieties of autumn and winter-flowering Violets with double flowers. It has flowers of a deep purple, with a considerable amount of white at the base of the petals or in the eye; perfect half balls, in good examples the size of a florin. The footstalks are of good length but slender, and, like most other double varieties, do not support the flowers, which are from their weight prostrate. The foliage is very neat, not unlike the double Russian, but more heart-shaped. The plant is very floriferous, and from its neat habit is fine for pots, which for such varieties as this and the Neapolitan types need not exceed 5 inches in diameter, in which well-flowered plants are always acceptable for rooms. De Parme, Venice, and New York are fine grown in pots, and a succession can be had by drafting the plants from cold frames to a house with a temperature of 50° artificially at intervals. V. argenteaeflora in pots, with its runners flowering from every joint as well as from the crowns right through the winter in a temperature of 40° to 45°, is useful for brackets. It is without an equal for elegance, sweetness, and abundance of blooms. The more I see of it the more I like it; yet its flowers are single with pointed petals, and the colour grey, whiter in late summer and autumn than in spring.—G. ABBEY.

FRUIT-JUDGING AT EDINBURGH.

THE chief aim of horticultural societies is to stimulate and foster a desire amongst gardeners to produce fruits, flowers, and vegetables of superior quality for supplying the wants of their employers, and as an encouragement to that end handsome prizes are offered for competition to gardeners who may be desirous of testing their skill by placing their productions side by side with those of their brethren on the exhibition table, where the merits of the respective collections are decided by judges appointed for the purpose. In some instances, however, quality receives little consideration, while quantity or size of individual objects in the competing collections receives an undue share of attention, and is the means of securing the coveted prize.

In the culture of flowers and ornamental plants the cultivator has but one thing to keep in view—namely, the production of an object to please the eye. On the other hand, in the culture of most fruits and many vegetables his efforts should be to please the eye and satisfy the palate; and he who is able to place on his employer's or the exhibition table Pines, Pears, and Peaches, Grapes, Melons, and Plums, Apricots, Apples, and Figs that are pleasing to the eye and satisfactory to the palate has reached a good position as a cultivator. The eye, however, is a great despot or monopolist, and, like all despots, so long as it is satisfied cares very little whether other members of the same body or community are so or not.

I am of opinion that in the case of some classes of fruit at the great Show at Edinburgh on the 13th and 14th inst. the eye asserted its despotic sway, and awarded the prizes without giving its coadjutor the palate a chance of expressing an opinion on the matter. This was strikingly evident in the class for six varieties of Grapes, two bunches of each. In the collection that secured the highest honours there were large well-formed bunches, some being certainly unripe and second-rate varieties. These large well-formed bunches caught the eye in "the grey of the morning" and satisfied it to repletion. If a few of the outer berries had been removed from these handsome-looking bunches, and one or two of the interior been submitted to the palate, I am of opinion that it would have recorded an opposite verdict to that rendered by the eye.

In the class for twelve varieties of fruit the eye was again charmed with the collection that contained large bunches of Grapes of similar build and quality to those referred to; and, as a consequence, the first prize was awarded to it. The third-prize collection in this class should unquestionably have occupied the first place. Every dish of fruit in it was ripe and fit to place on the table of a prince, whereas the large bunches of Grapes and one of the Pines in the first-prize lot were in an unfit state, as regards ripeness, to place on any table.

Another class, that for single dishes of Peaches, supplied a further illustration of how the eye is fascinated by large-sized

fruits. In this case the winning lot was composed of large unnamed fruit of a sickly yellow appearance, there not being a tinge of peach colour to be seen on one of them.

At the beginning I remarked that the chief aim of horticultural societies was to induce gardeners to produce fruit, &c., of superior quality for the supply of their employers' wants; and the question I would now ask is this—Can bunches of Gros Guillaume and Trebbiano Grapes weighing from 9 to 12 lbs. be ripened early in September in any part of the United Kingdom to that degree of excellence that bunches of Madresfield Court and Muscat of Alexandria can that weigh from 2 to 4 lbs.? Even supposing it could be done, are the larger bunches as profitable and useful for our employers' tables? and will they keep as well as those of the lesser weight? If these questions are answered in the negative, as I expect they will, then why should our great horticultural societies encourage the production of such unwieldy bunches and award the chief honours to imperfectly ripened Grapes? I trust this matter will be taken up by others competent to deal with it, as an important principle is at stake—namely, whether fruit that could not be properly included in a first-class dessert should be awarded high honours because of its size, while other examples abundantly large for any dish or table, and of much better quality, should be placed in the background?—H. B.

PLANTS FOR WINTER FLOWERING.

IT is now time for all plants which have been grown throughout summer in the kitchen garden to be lifted and placed in pots. The simplest way of managing these I have also found to be the quickest and the best. It is generally thought necessary, after potting any or all of these, that they should be placed under glass and kept in a close and moist atmosphere until root-action has commenced. But this is not so. In fact I have always managed so as to have root-action commenced before the plants have been housed. It may be useful to state the reasons why this system succeeds so well; and it may be premised that any plants which have previously been grown in pots do not need to be raised so as to break a portion of the roots a short time before lifting. With those which have not been in pots before, such as young Bouvardias, Chrysanthemums, &c., a slight raising a week previous to lifting is of advantage; but as a rule this is a part of the practice which has been considerably modified, as we find that very few plants suffer in the slightest degree lifted at this season. No safer time than the present can be found for removing and replanting strong border-flowering plants, young fruit trees, Roses, and shrubs. There is not enough heat to cause flagging, and when the days are warm the nights are cool and moist, so that root-action takes place quickly. All kinds of plants prepared by planting out in summer are under exactly the same conditions with these; and when placed in a shady position for a few days, with the little water that may be required, they become sufficiently established in a week to ten days to be removed into any house, whether cool or warm, without losing their foliage. Bedding plants which are occasionally lifted at this season are treated in exactly the same manner, and are found to do equally well.

A compost of three parts turfy loam to one of cow manure rubbed fine is suitable. Drainage must in every case be good, as a sufficient quantity of water is a necessity, and all chance of water-logging must be guarded against. Another point to be emphasised is that the smallest pots possible to contain the roots of the plants should be used, and the soil should be rammed very firmly down. These two latter points will ensure a floriferous condition in the plants. To maintain this condition manurial aid must be employed. This is done in our case by placing a small dressing of artificial manure once in every ten days on the surface of the soil, and is washed down when the plants are watered. A light position, ventilation when weather is favourable, and sufficient but moderate heat, are all that are required to give satisfaction to all concerned. Failure often follows through want of sufficient heat. A plant that will flower freely out of doors in August requires a stove temperature to flower in during winter.—B.

WASPS.—Much has been written from time to time about wasps since "DUCKWING'S" first communication last spring, which caused many to take more notice of these pests than they probably would have done; and I feel sure the more they are studied, even by "DUCKWING" himself, the sooner he will be convinced that he is in error. Last spring there were many queen wasps here, and we killed numbers with a garden syringe, which I find the most useful thing to bring them down with; but notwithstanding this and the continuous wet season there are many nests. We have already taken about a dozen, and I know of several more. This is not a large number in comparison with some places; but I think it is a lot for a

cold wet locality like this, and where a few bright sunny days in succession are of rare occurrence.—WILLIAM CONNELLY, *Leagram*.

WHAT IS THE MANURIAL VALUE OF PHOSPHATE OF MAGNESIA?

IN my letter, page 225 of the *Journal of Horticulture*, I endeavoured to show that agricultural chemists did injustice both to the buyers and sellers of manures in failing to appraise the magnesia they may contain. In my present communication I propose to carry forward my inquiry to the combination of this substance with phosphoric acid, which I believe to be the most useful form in which the latter can be applied to the soil for the nourishment of plants—an opinion which not only conforms with the teachings of Liebig, but is, so far as has yet been ascertained, supported by practical results.

In dealing with the question I shall, in the first place, recall to the minds of your readers how much uncertainty prevails concerning the efficacy of different forms of phosphoric acid, and that their true money worth to the farmer is by no means adequately measured by the valuations which the chemist puts upon them. I shall next inquire into the principles upon which, having a due regard to what is known of plant-nutrition and the mode in which it is brought about, these valuations should be made. Then I shall try to show that the teachings of science as explained by Liebig are fully borne out by practical experience; and, finally, I shall endeavour to persuade horticulturists as well as agriculturists that phosphate of magnesia meets all the requirements of a plant food in a most admirable manner, and ask your readers, if they are unable to show that it is futile, to assist me in my endeavours to spread a knowledge of the accuracy of what I advance. It may be assumed with confidence, I believe, that the generality of orthodox agricultural chemists fix, roughly speaking, the value of mineral phosphate of lime in a manure at a quarter the value which is given to it by dissolving it in oil of vitriol, and if, after having been brought into solution, the phosphoric acid is precipitated as phosphate of lime by an alkali or alkaline earth, the worth of this precipitated phosphate of lime is depreciated by one-half as compared with the same salt in the soluble condition.

This practice in valuation is (and as will appear on good grounds) departed from by some chemists, who put the value of precipitated phosphate of lime as almost, but not quite, equivalent to that of phosphate of lime in mineral superphosphates, say at seven-eighths of the value of soluble phosphate of lime in superphosphates, mineral phosphate untreated by acid being reckoned at one-quarter the value only of the soluble phosphate. The so-called insoluble phosphates (though not in fact absolutely insoluble) in bone or from guano are generally assumed to be of the same value as precipitated phosphate, or to differ little from it in value.

Let us now inquire upon what principle these valuations are confessedly based, or what chemists have to say in support of them. Broadly speaking we may assume that the point regarded is mainly if not wholly based on the solubility of the phosphates in water. Dr. Voelcker, in a very careful and conscientious paper on the "solubility of phosphatic materials," shows that one gallon of distilled water will dissolve the following amounts of phosphate of lime from different sources.

	In a gallon.
Extremadura phosphorite	0.10 grain.
Norwegian apatite	0.44 "
Coprolites (mean of Suffolk and Cambridgeshire)	0.62 "
Monk's Island phosphate.....	1.00 "
Pure bone ash (from very hard bone)	1.18 grains.
Pure tribasic phosphate of lime precipitated, burnt, } and finely ground	2.20 "
Guano	2.52 "
Pure tribasic phosphate precipitated and still moist..	5.56 "

The indications afforded by the foregoing results are summed up by Voelcker in the following conclusions. Extracts only are given from his table, and I have arranged the conclusions which I have selected in the order which seemed best to suit my line of argument:—

"7, The phosphates contained in coprolites, apatite, . . . Spanish phosphate, and other phosphatic minerals, especially when they are hard and crystalline, are very little acted upon by water."

"8, For agricultural purposes phosphatic minerals, as well as bone ash, should be treated with a quantity of sulphuric acid sufficient to convert the whole of the insoluble phosphates therein contained as completely as possible into soluble combinations. It is a waste of good raw materials to leave much of the insoluble phosphates unacted upon by acid."

"9, Insoluble phosphates present in superphosphate or other artificial manure have little or no practical value to the farmer."

"5, Bone ash is not sufficiently soluble in water to be used with advantage by itself or mixed with other fertilising matter as a manure."

"6, The earthy phosphates in Peruvian and phosphatic guanos still containing a good deal of organic matter or salts of ammonia are sufficiently soluble in water to be readily appropriated by plants."

And in an earlier part of his paper Voelcker shows that carefully prepared, precipitated, and dried phosphate of lime from bone phosphates constitutes "a very valuable fertilising material which is readily appropriated by plants."

These conclusions by Dr. Voelcker, which were arrived at about fifteen years since, would appear, in fact, to give some explanation of the results which Jamieson has shown by actual trial in Aberdeenshire and Sussex (see report of Review on the Experiments of the Sussex Association, page 110, *Journal of Horticulture*) to follow fine grinding of the coprolites used for manuring Turnips. With ground coprolites the results were as good as were obtained with superphosphate. If, then, phosphate of lime in finely ground coprolites, with a solubility in water of only 0.62 grains per gallon, can produce results but 10 per cent. below what follows from an application of soluble phosphate—and Dr. Voelcker considers (indeed no one disputes it) that phosphate of lime as found in guano, with a solubility of but 2.52 grains per gallon, is sufficiently soluble in water to be "readily appropriated by plants"—it ought not to astonish us, seeing that a small addition of sal ammoniac to the water increases the solubility of precipitated phosphate fourfold, that coprolite may become in a manure containing ammonia salts, or in a soil capable of yielding other equally or more powerful solvents, sufficiently soluble to produce the results which Jamieson obtained. But this question of the action of other solvents in conjunction with water must be left for my next communication. It is a question full of interest.—INQUIRER.

STRIKING EUONYMUSES.

ON page 270 of your last issue "A. B." has some remarks under this heading which I can fully endorse as being perfectly correct. Had he read carefully the whole of my article he would have found that I said these plants could be propagated in rooms by merely turning over them a tumbler, and by those who possess only a poor knowledge of window plants. When the choice variegated forms are required in quantity it is not wise to rely upon any makeshift system, but to follow judiciously one that is likely to lead to success.

There are many advantages to be gained by placing the cuttings in pots, as described on page 240. When the cuttings are callused they can be taken into the Conifer house where a little heat is always maintained, and thus they will form roots much more quickly than in cold frames. This saves valuable time (which means money to those who propagate them for sale), and the plants are established in pots and growing freely by the time "A. B." would have them rooted. The better variegated forms can be planted out from the cutting pots the same as "A. B." subjected his green kinds to; but it must be remembered the choice variegated forms do not grow so rapidly as the green varieties, and by establishing the former in pots they make greater progress than if planted directly outside. In extensive nurseries with which I am acquainted the better forms are kept in pots, which ensures their safe removal at any season.—W. BARDNEY.

ON PLANTING FRUIT TREES.

As the planting season will soon arrive preparing the ground should be commenced, as after-success depends much on this. If the ground is not properly prepared the trees will not do nearly so well, besides being a prey to canker and other evils. Some judgment must be used as to the stocks the trees are worked on. I should never think of planting Apples on the Crab stock in a small kitchen garden, as they soon grow out of bounds and shade the ground where good vegetables could be grown, and this remark may apply to gardens of a larger size. If the place is of good extent an orchard should be provided, where Apples on the Crab stock are the best to plant for large crops of fruit; but for a kitchen garden I should undoubtedly advise planting those trees that are worked on the Paradise stock. Have some method, not planting in the middle of the vegetable quarters, which spoils the appearance of the garden, besides vegetables, and wastes much valuable room. I recommend planting by the sides of walks, but not if there should be any danger of shading the trees on the walls.

Generally kitchen gardens are square, with a walk across the centre each way. That is the place to plant Apple and Pear trees,

and around the side walks opposite the walls espaliers are suitable, and these should not be planted unless they can be placed 20 feet from the wall.

In preparing the ground dig it 2 to 3 feet in depth and 12 feet wide. If the garden is old work some good turf and wood ashes with the soil. If, on the other hand, the garden is new, work in plenty of decayed vegetable refuse free from weeds, and burnt earth. When the time arrives for planting the trees, which is immediately after the leaves fall, no time should be lost if the weather is favourable. Never plant if the ground is frosty or wet. The trees on the Paradise stock should be 9 or 10 feet apart. Before planting cut off all bruised roots with a sharp knife, and dig the hole 18 inches larger than the roots when spread out. Be careful not to plant too deeply. After the tree is placed in the hole place some good prepared turf around the roots and shake it amongst them. Firm the soil, and spread a little litter about the surface. Do not prune them until the end of February, and if planted early they will start almost as well as established trees.

One thing must be borne in mind—that is, to procure trees that have been budded or grafted close to the ground, so that when planted the union may be covered with soil. If the trees are lifted once or twice annually after being planted and the soil well stirred it will help to make them handsome and fruitful trees. The following twelve varieties, culinary and dessert, will be found a good selection for succession.

Dessert Varieties.—Irish Peach, Kerry Pippin, Margil, King of the Pippins, Cox's Orange Pippin, Ribston Pippin, Ashmead's Kernel, Duke of Devonshire, Northern Spy, Mannington's Pearmain, Lodgemore Nonpareil, and Sturmer Pippin.

Culinary Varieties.—Ecklinville Seedling, Lord Suffield, Stirling Castle, Gravenstein, Blenheim Pippin, Warner's King, Betty Geeson, Wormsley Pippin, Loddington, Rymer, Dumelow's Seedling, and Northern Greening.—A. YOUNG.

AMONG THE ROSES AT CHESHUNT.

THE Cheshunt Roses! Who that has heard of them (and who has not?) or has admired them in their mossy stands at the Palace or elsewhere but has desired to see them in all their many thousands, and their surpassing beauty in their home in the fair Lea valley? Perhaps some to whom the fulfilment of this desire is among "the impossibles" may find some consolation in reading of what a more favoured fellow mortal saw on a fine Saturday afternoon.

Arriving at the nursery I was received (in the absence of Mr. Paul) by the intelligent Rose foreman, Mr. Gater, who conducted me first along the bank of the New River to the principal Rose quarters. Here our attention was devoted to a large piece of dwarfs on Briar cuttings; and here let me say that if it suits in other situations as it does at Cheshunt this bids fair to become the stock of the future. On one plant of Duke of Edinburgh I counted ten strong healthy shoots ranging from 2 to 3 feet in length, six of which were bearing blooms which would not have disgraced any first-prize stand. Another good quality of this stock is that Roses worked on it bloom intermediately between Manetti and seedling Briar, and thus what is often a gap in the blooming season is filled up and the beauty of the rosery maintained over a considerably longer period than could have been expected some few years ago. This piece is devoted principally to the older standard varieties, all of which appeared to be in splendid condition both of growth and of bloom, conspicuous among them being Marie Baumann, not (on this stock at least) the poor grower that our dear friend the late Mr. Radclyffe feared it was, but vigorous healthy bushes, with shoots 3 feet high and as thick as one's finger, bearing blooms that could only be described as magnificent in size and form. A. K. Williams, the greatest acquisition of late years; Louis Van Houtte, splendid; Alfred Colomb, in such style as I never remember having seen it before; Comte Raimbaud, an almost lost Rose till Mr. Baker astonished everybody with a bloom of it at Hereford about four years ago; Horace Vernet, Chas. Lefebvre, the "Old General," Sultan of Zanzibar, and Fisher Holmes among the dark Roses were also very fine. The lighter varieties had suffered much from wet cold weather, but the following among them were very fine—Capt. Christy, Comtesse de Serenye, Madame Gabriel Luizet, Baronne de Rothschild (shown in fine form everywhere this year), and the "everybody's Rose" La France. There seems to be some mystery about the parentage of the last-named Rose. Query, Is there any Noisette blood about it? It has been no uncommon thing this year to have a bunch of five or six blooms at the end of a single shoot.

From these we passed on to the Manetti quarters. Here the best of the bloom was over, but the following were proving themselves good late varieties:—Le Havre, very glowing; Beauty of Waltham, old but very good; Madame Victor Verdier, splendid colour and form; Baronne de Rothschild; Annie Wood, very bright; Marquise de Castellane, very fine this year; Royal Standard; Sir G. Wolseley, generally at its best late in the season; Ferdinand de Lesseps, Senateur Vaisse, and John Stuart Mill; Chas. Darwin also was exceptionally fine.

Our next advance was to the quarters devoted to the newer varieties. Here was a very fine display, and it was gratifying to note that

conspicuous among the best of them were those sent into commerce by English nurserymen. Harrison Weir is quite the Rose we should expect from such parents as Charles Lefebvre and Xavier Olibo. Mrs. Harry Turner, another Slough Rose, is splendid in colour, though perhaps a little inclined to open in the eye. Pride of Waltham will be a good addition to the light Roses, while Masterpiece is of the colour of Beauty of Waltham, but larger and fuller; and the bright crimson Rose honoured with the name of the lady who, until lately, reigned at the Old Weir, promises to afford blooms of fine size and substance long after her fellows have given up for the season. Of Mr. Paul's own new sorts it is sufficient to say that they will undoubtedly maintain the character their predecessors have gained—viz., good to begin with and improving upon acquaintance. White Baroness is being eagerly inquired for; George Baker is a large round bloom of the colour of Dupuy Jamain, and with foliage nearly as beautiful as its flower; Brightness of Cheshunt will add beauty to every garden in which it is found; and Duke of Teek is too well known and valued to need again describing. Among the newer introductions from the continent there also appear to be some decided acquisitions. Rosieriste Jacobs promises to be a gem of the first water. One bloom which I have in mind, I understand, was an exceptionally fine one; perhaps so, for it was as nearly as possible of the same size and form as Mr. Baker's medal-winning A. K. Williams at the Crystal Palace, with the colour of a good Xavier Olibo or Fisher Holmes. If of good constitution every exhibitor in the kingdom will want it. Another good dark one is Auguste Auchner, crimson, flushed with maroon. Guillaume Guillemot is a fine globular flower of a bright rose colour. Madame Montet is a delicate soft pink in colour, but rather loose in the petal; and Souvenir de Madame Alfred Vy is a useful distinct Rose, dark red, with a very decided purple shading. George Moreau and Comtesse de Camande are good additions to the bright reds; and Madame J. Periere is a very fine new Bourbon.

We next visited a fine piece of standard Teas, where we found Souvenirs d'Elise, d'un Ami, and de Paul Neyron; Devonensis, Catherine Mermet, Madame Lambard, Jean Ducher, Niphetos, and many other well-known varieties of this beautiful class, most of them in very fine condition, though in many cases it would seem that as standards is not the best manner of cultivation for them. From hence we moved on to the unique Tea Rose garden, an enclosure surrounded by a thick hedge and laid out in beds, down the centre of each of which runs a wire trelliswork for the accommodation of Gloire de Dijon, Madame Berard, Cloth of Gold, and other free-growing sorts, the beds being completed by a row of standards and one of dwarfs (all Teas) each side the trellis. Among the many varieties of the Tea section which find a place in this snug spot Caroline Kuster and the little-known Princess Vera were uncommonly good.

This completed the outdoor programme, which was followed by an indoor one of almost equal extent. We visited houses devoted to plants in 10-inch pots for early forcing, houses of climbers in pots, houses of own-root Roses, to say nothing of almost acres of glass covering the usual stock of a first-class English nursery. By this time the genial proprietor had returned, and a pleasant chat about the Rose season in general, the French growers' establishments, the just-past exhibitions, and the many topics dear to the heart of rosarians, concluded one of the most pleasant outings ever enjoyed by—J. B.

LORD NAPIER NECTARINE FOR FORCING.

THIS subject is interesting to me from the fact that I have vacancies for a tree or two in the early houses, and Lord Napier being the best grower of all Peaches and Nectarines. I have several beautiful plants of this variety which I could select from if more evidence is forthcoming in its favour as a forcing variety. For my own part I have had no experience with it indoors worth taking into account, but out of doors it is a grand addition to our hardy fruits. Coming in as it does after Early Louise Peach and before Hale's Early, it fills what with me would otherwise be a blank. I have just pulled out a large plant of Early Beatrice which has never been satisfactory in the early house; and Hale's Early, which is the best of all the early Peaches I am acquainted with, has not always had a full crop indoors, but the trees are young, and they may become more reliable with age. I must confess, however, that as these two varieties are large-flowered, and Lord Napier Nectarine is the same, I have allowed myself to become a little prejudiced against large-flowering varieties for forcing. Still I cannot understand what there can be in the larger flowers to make the difference, and it may be only a coincidence with some other peculiarity of these varieties. I should be very glad if Mr. Bardney or anyone else can give us more particulars as to the time of ripening of Lord Napier when forced, say, to come in at the end of May, and whether it has borne a full crop under this treatment. I would also solicit the same kind of information respecting Hale's Early Peach compared with, say, Royal George.—WM. TAYLOR.

THIS Nectarine is highly spoken of on page 278 for an early house, where I have every reason to believe it will be very satis-

factory when grown under warm conditions to ripen the fruit and wood; but from what I can gather it is not a very reliable variety on walls outside, or even in cool late houses. I am acquainted with an able cultivator who formed a very good opinion of this variety last year, when the fruit swelled to a large size and coloured well. This season I tasted fruit from his tree, the crop only being thin, which was flavourless and not swelling satisfactorily. This he attributes to the heavy rainfall in the northern locality in which he lives and the cold sunless season. If this Nectarine, which promises so well for early forcing, proves unreliable outside or in late houses in this changeable climate, no time should be lost in discussing its merits or defects. The planting season is at hand, and if those who have grown it under cool conditions would record their experience in this Journal much valuable time and labour might be saved those intending to plant it in such positions. To grow a tree to a fruiting size and then have a failure is rather annoying, but this may be prevented by the records of experience. —LANCASTRIAN.

SEEDLING POTATO EXHIBITION.

THE first Exhibition of the kind was held at Northampton on Thursday and Friday last, within the enclosure for the Northamptonshire Agricultural Society and in connection therewith. The seedling Potato Exhibition originated through a suggestion of Lady Knightly of Fawsley Park, and the arrangements were undertaken by Mr. Farr of Fawsley Park Gardens, assisted by an energetic Committee; and although from the novelty of the attempt the working was somewhat crude and not altogether free from difficulty, yet from the material success which has attended their well-directed efforts on this occasion it is probable that the Show will become an annual one in connection with the agricultural meeting, when doubtless the experience gained this season will enable the Committee to remove or prevent a recurrence of any difficulties which may have occurred in the practical details of the Show. Sixteen prizes varying from £1 10s. to 5s. each in four classes for *bonâ fide* seedlings not in commerce were offered, and for these there were forty-six entries from various parts of Great Britain, a majority of the entries being in the popular class for white kidneys. The schedule required that, where practicable, the parentage should be stated; but this wholesome regulation was not, unfortunately, in several instances carried out, nor any explanation given as to the origin, or to enable identification of the variety. The specimens were judged after cooking, which would appear to have been defectively carried out, as none of the tubers tried were in really eatable condition, the excess of moisture not having been removed, and a test under such circumstances could hardly be thoroughly satisfactory.

The prizes were awarded as follows:—In Class A, for the best white kidney, Mr. J. Hughes, Eydon, Byfield, was first for a handsome longish white variety, described as a seedling from Paterson's Victoria, but it was not stated whether the variety was early, medium, or late, and the appearance indicated no connection with the parent variety. Messrs. F. & C. Myatt, Offenham, Evesham, were awarded second for King Offa, a seedling from Myatt's Prolific Ashleaf, but shorter and flatter than that variety. Mr. Cole, gardener to Earl Spencer, came third with Cole's Prolific, a good-looking kidney, but information as to its origin was altogether wanting. The fourth prize went to Mr. C. Ross, Welford Park, Newbury, for Welford Park Seedling, raised from Woodstock Kidney.

In Class B, for coloured kidneys, Mr. R. Fenn, Sulhamstead, Reading, was first for a long pink seedling from Snowflake; Mr. W. Kerr of Dargavil, N.B., being second for Sir Garnet, a longish-pointed red variety, broadly marked with white. The third prize went to Mr. Hughes for a handsome long flattish tuber, origin unknown. For the fourth prize no award was made.

In Class C, for white rounds, Mr. Fenn was again first with a variety of good quality, but hardly falling within the definition of a *bonâ fide* seedling nor a white round, as the tubers were marked with purple and said to be from a sport of Woodstock Kidney. Mr. W. Horley, Toddington, Dunstable, was second with a seedling from Giant King, but in appearance this variety was not much different from nor in advance of its parent. The third prize went to Mr. T. W. Hill, Durwards, Witham, Essex, for a deep-eyed seedling of the Champion type, but with whiter flesh, said to have been raised from a clump of mixed seed. Mr. Ross was fourth with his Sir Walter Raleigh, a seedling from American Excelsior.

In Class D, for coloured rounds, Mr. John Waugh, Castle Hill, Lochmaben, N.B., obtained the first prize with a pale red flattish round seedling, its cooking properties being above the average of the others exhibited. Mr. R. Roe of High Street, Northampton, was third, and Mr. Edward Simons of Harlestone, Northampton, third with a small round red. Fourth, no award.

Several good-looking tubers did not appear to find favour with the Judges, amongst them being two good-sized oval rough-skinned sorts from Mr. Hughes, stated to be crosses between Beauty of Hebron and Myatt's Prolific. A flat round seedling from Mr. Fenn, described as very early and possessing the dwarfest foliage of any known variety, appeared promising. Defective cooking is undoubtedly a serious drawback to a satisfactory test, and in future it would be well to have cooked some of the standard varieties and the parents of the seedlings,

where practicable, for comparison, due allowance being made for the size of the tubers and the period of ripening of the varieties, which should be given by the exhibitors.

ERYTHRONIUMS.

THE Dog's-tooth Violets form an extremely pretty genus belonging to the great Lily family, very distinct in appearance and easily grown. The majority of them are generally cultivated, as they are special favourites with most lovers of hardy bulbs. They are perfectly hardy, and, what is equally desirable, they appear to disregard the irregularities of our climate, which is not the case with a great many of our introduced bulbous plants, especially with those from North America. The common *E. Dens-canis* and some of its varieties are European, all the rest are American. There appears to be a considerable amount of confusion amongst amateurs as to the correct nomenclature of the species, many confounding the varieties of *E. Dens-canis* with the true species of similar names; for instance, the variety *albidum*, which is a European form, is frequently mistaken for *E. albidum* of Nuttall, and *vice versa*. I have frequently been asked, What is the distinction between the two plants? and the latter-named has even been regarded only as a synonym of the former. Such, however, is not the case, as the plants are distinct in bulb and foliage as well as floral arrangement. There are but few species, with some distinct varieties, and they are naturally divisible into two groups—viz., those with solitary flowers and those with from one to eight flowers. The former group include *E. Dens-canis*, and varieties *E. albidum* and *E. propullans*, while the latter is represented by *E. grandiflorum* and its varieties *E. Hartwegi* and *E. purpurascens*.

There is no difficulty attending the cultivation of these plants, neither are they very fastidious as to soil, as I have known them thrive in almost any soil and position with the exception of very stiff and clayey soil. A considerable number has just been raised, and the soil in which they have been grown during the last three years is very light and sandy, moderately rich and well-drained, while the position is quite open and exposed. I should not recommend a very exposed position, as owing to their early flowering they are very liable to be destroyed by strong cutting spring winds. To say the least, it is more than probable that the period of beauty may be materially shortened. But certainly they thrive admirably in light sandy rich soil, and if the position is sheltered they are extremely showy, and most interesting as a group of hardy flowers. It is not well to disturb them very often, as they will not be nearly so attractive if but half established. Allow them to remain undisturbed for some three or four years until the bulbs are overcrowded. There are a number of positions most suitable for them beside the ordinary border or bed, for it must be borne in mind that during the greater part of the summer they are dormant, and consequently there is only bare soil where they are planted. It is just as well to arrange them in such a position so that some half-hardy plants could be planted near them, and the barrenness would be reduced to a minimum. This could be very easily managed either on the rockery or in borders; but care should be taken to have the exact position of the *Erythrונים* marked, so they would not be disturbed when the summer-flowering plants are removed in the autumn.

Numerous chinks in the rockery could be filled with the bulbs which are frequently unoccupied, and they would be very charming when there are but few showy things in flower on the rockery. The various species of *Crocus* are very pretty in such positions, and for naturalising in meadows, woodlands, by the margins of lakes they are admirably adapted. For this purpose the forms of *E. Dens-canis* are to be highly recommended, because they are very hardy and robust, and, what is equally important in such a matter, they are very cheap, costing but a nominal price per thousand, while the effect in association with Daffodils, Primroses, Oxlips, *Crocus*, and a host of other plants would be very pleasing. They should be planted as early as possible after September in clumps to have the best effect. Most of the rarer species will probably be imported, but it is advisable to get home-grown bulbs if possible. In the event of having imported specimens it is desirable at first to pot them in light sandy soil (leaf soil, loam, and sand in equal parts) in small pots, and place them in a cold frame, just keeping them damp until root-action has thoroughly commenced, when they may without hesitation be planted out. This is merely advised as a prevention against possible loss and consequent disappointment.

E. albidum, Nutt.—A similar plant to the next species. Leaves oblong-lanceolate, not mottled or dotted. Flowers solitary, bluish-white, with the segments entire at the base. The flowers are rarely quite white. It is widely distributed, occurring from New

York and Pennsylvania to Minnesota and Texas. It flowers in April and May, and was introduced in 1824.

E. americanum, Smith.—Bulbs very small, brownish. Leaves oblong or oblong-lanceolate, mottled and dotted. Flowers solitary, light yellow, 1 to 1½ inch long, frequently spotted with purple at the base; segments slightly toothed at the base. Linnaeus regards it as a variety of *E. Dens-canis*. It has also received the following names:—*E. carolinianum*, Walt., *E. lanceolatum*, Pursh (this was the accepted name for a long time), *E. angustatum*, Rab., *E. bracteatum*, Booth, and *E. Nuttallianum*, Schult. Thus it has a great variety of names, which are extremely misleading. It flowers with us in April and May, and has been known under cultivation ever since 1665. It enjoys peaty soil; in fact it does not thrive so well without as with peat. It is found from Canada to Florida and Arkansas.

E. Dens-canis, Linn.—Bulbs much larger than the last two species. Leaves ovate, ovate-lanceolate, or oblong, copiously mottled. Flowers solitary, 1 to 1½ inch long and nearly as wide, usually of a pinkish-purple colour, but there is a great variation of colour—white, yellow, and several shades of red. The white variety, which is named *albidum*, is very pretty, as also is the yellow-flowered kind. They are all of extremely easy culture, flowering outside early in April, being perfectly hardy. They are natives of Hungary, Italy, &c., and have been introduced ever since 1596, and it was well known to Parkinson, who describes it as "The Dog's-tooth with a pale purple flower." The typical form is well figured in "Curtis's Bot. Mag.," pl. 5.

E. grandiflorum, Pursh.—A very variable plant, with bulbs frequently 2 inches long but narrow. Leaves oblong-lanceolate, not mottled. Flowers solitary, or usually in racemes with from two to six flowers of a primrose yellow or cream colour, the base more or less tinged with orange, 1½ to 2 inches long. Mr. Sereno Watson has enumerated some varieties, all of which, however, he admits may be specific forms. Var. *albiflorum* (syn. *E. giganteum*, Lindl.; *E. grandiflorum*, Van Houtte) has large white flowers, orange at the base and mottled leaves. Var. *minor* has flowers about an inch long, bright yellow. Var. *Smithii*, Hook. (syn. *E. revolutum*, Smith) has large flowers tinged with purple or rose colour. Some if not all of these varieties are not found under cultivation in this country, or as far as my knowledge extends: I should be happy to learn that they were. The typical form is not very scarce, having been introduced since 1826. It flowers outside in April and May. It is found in Oregon, California, and Washington Territories.

E. Hartwegi, Watson.—Bulbs small. Leaves small, usually separated, ovate-lanceolate, mottled. Flowers usually two to three, very rarely solitary, in a sessile umbel 1 to 2 inches long, bright yellow, orange at the base, with spreading or slightly recurved segments to the perianth. It is Bentham's *E. grandiflorum* (*Pl. Hartw.*, 339). It is an extremely curious and rare species, occurring on the Sierra Nevada from Placer to Plumas counties, but not, I think, known in cultivation.

E. propullans, Gray.—Bulbs small. Leaves ovate, oblong acuminate, not mottled. Flowers solitary, about half an inch long, bright rose, yellowish at the base. A very scarce Minnesota plant, not existing in this country but cultivated in America, but of rare occurrence under cultivation, although a very pretty species.

E. purpurascens, Watson.—Bulb 1 to 2 inches long. Leaves large, more or less oblong, frequently undulated. Flowers usually from four to eight in a sub-umbellate raceme from 1 to 1½ inch long, light yellow tinged with purple, deep orange at the base. It has received several other names, and I enumerate all those that are reliable. *E. grandiflorum* var. *multiflorum*, Tour.; *E. g.* var. *multiscapidea*, Wood; *Fritillaria multiscapidea*, Kellogg. Mr. Watson regards Baker's *E. revolutum* as only a slender one-flowered variety of this plant. It is of comparatively recent introduction, flowering outside in May. Native of the Sierra Nevada, found in the same localities as the last species. It is a very beautiful species, and by no means common.—N.

LILIUM CATESBÆI.—This charming little Lily is now in bloom in Messrs. James Dickson & Son's nurseries at Chester, although it has been with some difficulty induced to do so, as it is evidently not an easy species to establish. Its flowering is of very rare occurrence in this country. The flowers are about 3 inches across, solitary, on a slender stem about a foot high. The divisions of the perianth are sharply reflexed about two-thirds from the apex, bright scarlet, the lower part yellow with a few blotches. It is certainly very distinct and curious. A good figure of it occurs in the "Bot. Mag.," pl. 259, and Mr. Curtis says "he received bulbs of it at the close of the year 1787, sent by Mr. Robert Squibb from South Carolina, and many of

which flowered with various persons in this country." It seems to delight in good drainage and a compost of leaf soil, peat, loam, and sand.—CESTRIAN.

SILKWORMS AND SILKWORM REARING.—16.

(Continued from page 254.)

THE moth of the species *Attacus Yama Mai*, referred to and figured in our preceding article, is unlike some of its brethren in the silkworm group, which, as moths, are notably slow in their movements. Although neither the male nor the female of *Yama Mai* care for long flights on the wing, it is found that they in captivity perform, after emergence from the pupa, a succession of skips and jumps. The result of these "gymnastic feats" is by no means beneficial to their appearance. It is true, however, as Dr. Wallace observes, that their conduct when imprisoned may be, to some extent, different from their usual habits if at liberty, and

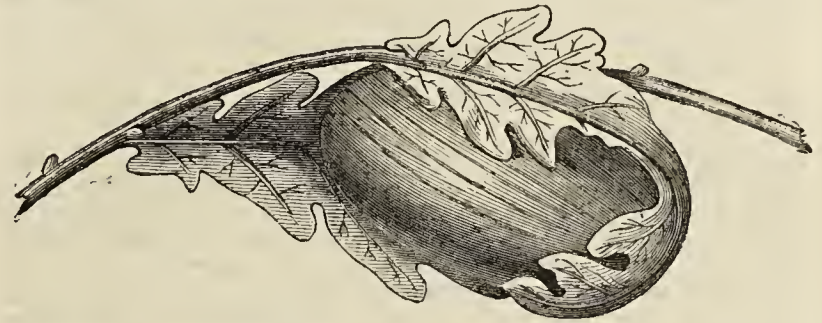


Fig. 46.—Cocoon of *Attacus Yama Mai*.

one of the experimenters has reported that his specimens thrive best in a cage which was both roomy and damp. Ere they force their way from the cocoon a liquid is discharged upon its fibres, which softens and loosens them. This by examination has been proved to be alkaline, not of an acid nature as in other species.

The cocoon of *Attacus Yama Mai* (fig. 46) is several times heavier than that of *B. Mori*, and the worm by preference encloses it in an Oak leaf; greenish in its exterior, the silk of the inner portion of the cocoon is paler or nearly white. In this the insect only remains a few weeks. The long period of quiescence during its life is passed in the egg state, which lasts from the autumn until the spring. This allows of the eggs being transmitted across the globe when necessary; it is only needful to keep them moderately cool, yet not too dry. The application of a magnifier has revealed the curious fact that the young worm or caterpillar hatches a few weeks after the egg is laid, but lies dormant in the shell until the end of April or May with us, emerging about the time the Oak is bursting into leaf. And although the species has been reared upon several plants beside the Oak, notably upon Apple and Beech, it seems to give preference to the Oak both in Europe and in its native land, Japan. Dr. Wallace rather thinks the Turkey Oak (*Q. Cerris*) is its special favourite, but the worms feed freely upon any species of *Quercus*. In repose

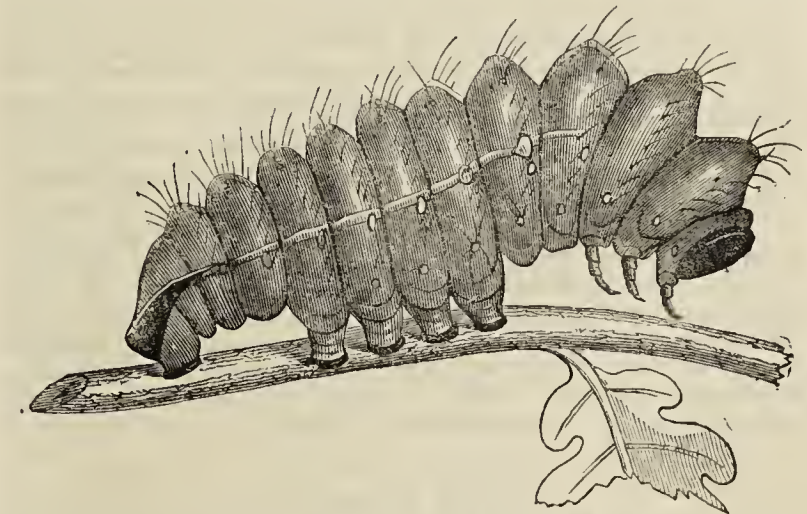


Fig. 47.—Caterpillar of *Attacus Yama Mai*.

this silkworm is fond of assuming the sphinx attitude (fig. 47), or with the head even more elevated than shown in the illustration. Before it begins to eat, the newly hatched worm shows a disposition to drink generally. The fact has been stated by a number of observers. Having sipped the morning dew and roved about a little, it may then be induced to begin upon the young leaves. Within an hour or two after quitting the egg it has so increased

its bulk that we wonder how it could have been enclosed in the shell so recently.

Of a yellow colour at first, with slight markings of black, the tubercles which are conspicuous later are hardly noticeable under an investiture of down. At each of the four changes of skin some alterations take place in its appearance, the grand increase of size, as is usual, occurring after the last moult. When adult the caterpillar of *A. Yama Mai* is of a beautiful green tint, having some curious silvery patches upon its sides; the tubercles are then blue. Occasionally these silkworms show a tendency to wander, which renders it impossible to keep them in trays as we do the common species, and, indeed, from the liability of Oak leaves to dry up, food distributed thus would want a too frequent renewal. There have been instances of these silkworms attacking each other (usually in hot weather), when they are immured in cages; but this should not be deemed a proof that they are naturally of a cannibal turn, like some caterpillars given to prey upon their brethren or upon other species. I might, however, remark that on showing one of these caterpillars to an entomologist who had never seen the species before, but who had been a careful student of caterpillar ways and doings, he observed on examination that he should have imagined from its appearance it could probably be vicious.

The experiments made with this silkworm both in England and upon the Continent during the years following the first arrival of eggs could not proceed very satisfactorily in consequence of our ignorance relative to its particular locality and its natural habits. To travel about Japan was difficult and dangerous, nor was information attainable by putting questions to traders and others who might be expected to know. Unaware to a great extent how *A. Yama Mai* might live in Japan, Dr. Wallace published in 1866 the following statement as the result of his practical investigations:—"It is necessary," said he, "to supply the very young larvæ with tender succulent leaves. They will bear a moderate amount of cold for brief periods with impunity. Though they avoid the direct sunshine, they like its warmth diffused through the natural leafy shade. Moisture is grateful to them at all times, and necessary to their existence, also a quick growth is most favourable. Dry hot weather is prejudicial to these larvæ, for which reason the climate of Ireland would probably prove highly favourable to the cultivation of this insect. Lastly, I am convinced that they would thrive better out of doors on the trees than in confinement."

Fifteen years have elapsed since, and a goodly number of experiments made under various circumstances uphold the Doctor's conclusions on the whole, but as yet, I fear, the Green Isle has not had her fair share of trial as a suitable home for the *Yama Mai*. The times now scarcely favour the introduction of a new industry to a land that furnishes statesmen and debaters with so many perplexing problems; but the day may come when the tourist, travelling in safety and comfort over Erin, may behold in many cottages the peasants busy over these or other silkworms, supplying them with food, collecting eggs from the moths, or winding off the cocoons.

Every silkworm has a liability to some malady or complaint, and the *A. Yama Mai* has been noticed to suffer from three at least, which are well defined as to their character and their period. Soon after the hatching, while they have only passed one or two of the changes of skin, the worms turn yellow and become soft. A similar complaint affects the common silkworm occasionally, French authors calling it the jaundice. The cause of this, Dr. Wallace suggests, is want of vitality or of power to assimilate nourishment from the food. Another complaint to which middle-aged worms are chiefly liable occurs in consequence of too high a temperature. The green hue of the surface fades to a dull brown, cracks appear at the segments, from which a white or greenish fluid issues when the worm attempts to move, and it speedily shrivels. Worms that are under the influence of the last complaint are familiarly said to be "peppered," from the tiny specks on the skin that precede the attack, under which they are sure to die if once seized. Unfortunately some of the largest in a brood are apt to be taken off.—J. R. S. C.

LATE GRAPES.

IN your opening remarks on the Crystal Palace Fruit Show you suggest two or three causes for the fruit not being first-rate, and you specially remark that many Grapes were not ripe. Speaking from experience Grapes do not ripen very freely this autumn, and the cause is obvious—namely, the very changeable weather, scarcity of sun, and, above all, the low night temperature throughout the summer. Certainly we look for cold nights in September, but to have a cold low temperature through July and August is

quite another matter. Noting your remarks on the Bath Floral Fête, I see again you say the Grapes were very unripe—this, too, in what I should consider a very favoured locality. The very pointed remarks of "CULTIVATOR" on late Grapes are opportune, and I fully endorse all he says as to early starting. He, however, mentions Lady Downe's and Alicante, which were ripe at the end of August, keeping until May. These varieties, however, unless the crop is very heavy, are two of the best for ripening early, and that, especially as regards the Alicante, means keeping well.

The Gros Colman, however, not being a quick Grape at colouring, will be far from ripe now—that is, where there is a fair crop. Of course Vines with only two or three bunches will be ready. Last year Gros Colman with me was not ripe until late in October, yet I failed to see the evil of late ripening. I cleared these out the last day of January, consequently did not start the Vines early, but let them gently start, then used the fire. My crop is heavy this year—too heavy perhaps; still I believe with a fair autumn, especially such bright days as we have had recently, they will be satisfactory. Having, however, determined to cut the Grapes out this year I shall start early to see the result. I always consider Gros Colman a grand Grape, though perhaps somewhat difficult to manage. It is greatly to be hoped that we may have a fine November, this being the most trying month for Grapes; and I scarcely wonder at growers cutting the fruit early in November and bottling it, the rest to Vines being also beneficial.

I have said nothing respecting the Muscat of Alexandria, but this must be forced early to have the Grapes well finished. I must, however, say that if not very highly coloured they will keep better than the blacks. This I always think is due to the extra heat given them. I do not advocate growing Grapes all the summer without fire; on the contrary, I believe in having fire from the day the Vines are started. I think fire heat employed late is almost useless as far as the Grapes are concerned, though the wood will receive some benefit.—STEPHEN CASTLE, *West Lynn, Norfolk.*

A VISIT TO CARTER'S SEED ESTABLISHMENT.

I HAVE just returned here from some holidays spent chiefly in Dublin, London, and Sussex. Like many of your correspondents and readers, gardening and all matters of collateral interest have for me on such occasions a special attraction. When visiting your metropolis I usually try and see as many of the public parks and remarkable nursery establishments as possible. I thought I should be breaking new ground and adding to my own horticultural knowledge if this time I tried to pass through and learn something of the nature of one of the monster seed warehouses, especially the wholesale department. Accident took me to Messrs. Carter's, High Holborn, and the requisite permission was freely granted.

While waiting a few moments in the wholesale office until the manager had disposed of the most urgent business, it was easy, even at the threshold, to see many things curious and new. Communication with the docks, other points of the metropolis, and the various departments of the establishment was by telephone, and almost instantaneous. Looking around the general office the staff seemed very numerous, though I afterwards understood this was only a portion of the clerical department. I noticed the manager running through a great mass of correspondence (some hundreds of letters) and dictating replies to several shorthand writers. I learned that the clerks included those who were not only masters of Her Majesty's English, but of almost all the modern languages—a matter easily understood to be indispensable when orders are received from almost every country in the world. I had an illustration while waiting of the international nature of the business, by the firm being called on to supply suitable seeds under specified conditions to the lately acquired island of Cyprus in the Levant, for laying down croquet and lawn tennis grounds on a new principle in Melbourne, and a request for the statement of prices "by the San Francisco mail of September 7th of Carter's machine-cleaned grass and farm seeds" from one of the largest consumers of California. London to Cyprus, Melbourne, and California! Here was food for reflection relative to the wide ramifications of the great seed industry of this country.

Even though hurrying rapidly along some hours were expended, and many things learnt by me that the exigencies of your space preclude a reference to. But one of the most striking features that few gardeners or amateurs have any idea of is the vast scale of supply and demand for a seed speciality with such a firm as this. Take an illustration that forcibly struck me here. Peas are a speciality, and it was very remarkable the labour and expense bestowed on maintaining their reputation, and to me instructive. The morning of my visit there were eighty-one women employed sorting peas in this department alone, and I learned on occasional exigencies the number runs up to 118. Every bruised, injured, or small pea was rigidly rejected, so that of the tons of their well-known varieties (Telegraph, Telephone, Stratagem, &c.) sent out how many gardeners think that every individual pea has passed through the fingers of the sorters! This no doubt is how great English firms maintain their reputation, and is well worth the notice of my countrymen as a typical case.

Another large department passed through was the grass seed houses. Here there were various machines at work, more or less different, but all devoted to sifting and cleaning, so as to secure a perfect sample. No wonder after such elaborate machinery, care, and expense the good article should be somewhat dearer. Subsequently I was introduced to the grass seed testing house, right up at the top, several storeys high. Here were several hundred specimen pots crowded with young lawn and farm grasses at several stages of development. This system gives firms enormous confidence as to what they send out. Convenient were the testing shelves for the more important farm and garden seeds, all of which were germinating strongly at a great elevation. Adjoining was a catering department where this firm entertain little short of a hundred of their employes on advantageous terms to them and with much thoughtful attention. At every turn the visitor is struck by the energy, rapidity, and despatch observed, without noise and without confusion, not less striking being the mechanical appliances for diminishing labour and curtailing expense. Very interesting just now were the bulb rooms. The first consignment from the Dutch farms had just arrived in splendid condition, and scores of hands were employed packing. We passed through the several flower and vegetable seed stores, on through the green crop and grain departments. I cannot now ask further space, except for a line thanking the employes of the firm, but especially the manager, for the courtesy extended to a stranger such as was—W. J. M., *Clonmel*.



IN accordance with the project described some time ago in these columns by Mr. J. Perkins, gardener to Lord Henniker, Thornham Hall, Eye, Suffolk, a GARDEN FETE WAS HELD IN THORNIAM PARK recently in aid of the Gardeners' Royal Benevolent Institution. Most unfortunately the weather proved extremely unfavourable, and in consequence the attendance of visitors was not nearly so large as it would otherwise have been, especially as a great variety of attractions was provided. The total receipts amounted to about £74, but it is not yet stated how large a balance will remain in favour of the Society when all expenses are paid. Despite this rather discouraging result Mr. Perkins deserves much credit for the energy he has displayed in the matter, and the generosity of Lord Henniker will no doubt be duly appreciated by friends of the Society.

— IN the Orchid house at Kew a very pretty little species is now flowering—namely, *LÆLIA MONOPHYLLUM*, which was received a short time since as a species of *Pleurothallis*, some of which it resembles to a certain extent in habit, but is totally distinct in its flowers. These are of moderate size, about $1\frac{1}{2}$ inch in diameter, with elliptical slightly undulated sepals and petals of a rich orange scarlet hue, very similar to *Epidendrum vitellinum*. The leaves are narrow and only a few inches high, the peduncles slightly exceeding them in length. Its dwarf habit would apparently well adapt it for culture in small pans suspended from the roof, especially as the flowers have a partial drooping inclination. It is said to be from Jamaica, but is probably not confined to that island.

— MESSRS. H. CANNELL & SONS, Swanley, send us several distinct and handsome varieties of SUNFLOWERS, which, quite apart from their æsthetic interest just now, possess qualities well entitling them to notice. Some very popular names have been selected for them, foremost being "Oscar Wilde," and we should think the variety so designated would undoubtedly commend itself to the taste of the gentleman whose name it bears. The flowers are rather above the ordinary size, about 8 inches in diameter, with bold pointed florets of a fine clear orange hue, very showy, but symmetrical. Closely related to this is one named Mr. Charles Matthews, very similar in all respects, but perhaps slightly less refined. Lord Dundreary is a noble variety, with the broad florets closely placed, and of a rich yellow tint. Sarah Bernhardt is of good size, fully 8 inches in diameter, the

centre florets light colour, and the ray florets bright yellow and shady. *Æstheticus*, also a fine-flowered form, has the centre disproportionately large, and scarcely merits its name. Two fine samples of the large double quilled form, *H. globulosus fistulosus*, are also noteworthy, the size, substance, and rich colour being very striking.

— PROMINENT amongst the smaller-flowered varieties is Mrs. Langtry, which might be termed an Oscar Wilde on a smaller scale, of rather lighter colour, but graceful. Mr. Sothern also has neat flowers, the bright yellow ray florets being very regular and tapering. Specimens of the double *Helianthus multiflorus*, an exceedingly useful plant for borders, and *Helenium autumnale*, another fine Sunflower-like late-blooming Composite of moderate height and extremely profuse-flowering habit, were included, and equally deserve attention.

— ACCOMPANYING the above were several samples of two useful bedding DAHLIAS, GLARE OF THE GARDEN and the WHITE JUAREZI. The former we have previously noted as remarkable alike for its floriferousness and the intensely rich deep scarlet colour of the flowers; indeed, as grown at Swanley it is literally a mass of colour, most telling in association with lighter tints. The White Juarezi also appears to be very free and pure in colour.

— THE WOOLHOPE NATURALISTS' FIELD CLUB will hold the last field meeting of the year at Hereford on Thursday, October 5th, for a foray among the funguses, when the Club will be honoured by the company of many distinguished mycologists. There will be an exhibition of funguses in the museum room at the Free Library, and an evening meeting will be held there on Wednesday evening, October 7th, to name and study them. Any collections for exhibition should be sent to Mr. Chapman, at the Free Library, as early on Tuesday or Wednesday as may be convenient to the members sending them. The foray will be made on Credenhill Camp. A short paper will be read in the field by Dr. Bull on "Credenhill Camp—Magna Castra." A meeting of the members will be held in the Woolhope Club room, immediately after arrival in Hereford, to elect the officers for the ensuing year, and to transact the ordinary business of the Club. The dinner will take place at the Green Dragon Hotel at 4.30 P.M., when some edible funguses will be served, cooked from the Club receipts. An evening reception will be held at the house of Thos. Cam, Esq., St. Owen Street, at 8 P.M., to which he invites all who may be present at the meeting. After dinner, or at the evening meetings, papers will be read on the following subjects:—"Puff-Balls," by M. C. Cooke, M.A., LL.D., &c.; "The Meaning of British Birds' Names," by Henry T. Wharton, M.A., Oxon, F.Z.S., Member of the British Ornithologists' Union, &c.; "The Breconshire Raptures," by Mr. E. Cambridge Phillips; "A Revised List of British Discomycetes, with some Suggestions as to their Classification; and on the Polymorphism of *Rhytisma Radicale*, *Che*," by Mr. Wm. Phillips, F.L.S., &c.; "A New British *Venturia*, and Notes on *Glœocapsa sanguinea*," by the Rev. J. E. Vize, M.A.; "Experiments on the Physiology of the Uredines, and on the Classification of Uredines," by Mr. C. B. Plowright; "The Structure and Appearance of Lichen *Jolithus*, *Linn.*," by Mr. Edwin Lees, F.L.S., &c. A series of enlarged microscopic drawings, by Miss Florence M. Reid; and a collection of other interesting microscopic objects will be exhibited by Mr. Blashill, the President. Gentlemen intending to be present are requested to send their names to the Secretary, Theophilus Lane, Broomy Hill, on or before Monday, October 2nd, that all proper arrangements may be made for their comfort.

— MR. T. WHITE, gardener to C. N. Newdegate, Esq., M.P., Arbury Hall, Nuneaton, sends us a box of very handsome CAMELLIA BLOOMS, white and pink, of good size, beautiful form,

and indeed unusually fine for this time of year. He states that he has had flowers of the same plants since the 20th of August. The blooms arrived in excellent condition, as they were most carefully packed—a rare circumstance; and though cotton wool was employed the blooms were separated from it by layers of paper both above and below.

— IN answer to inquiries respecting the WHITE CLOVE CARNATION "VIRGO," Mr. G. Rudd writes that "it was raised by the late Mr. John Fletcher of North Bierley, near Bradford, from a sowing of seed made by him in the spring of 1878, the plants from which flowered in August 1879. He partially distributed it in the autumn of that year to a few friends, and in the autumn of 1880 he sold the surplus plants of it along with other varieties to Messrs. James Dickson & Son of Chester, who have been exhibiting it this season under the name of Duchess of Westminster, at least I take it to be that sort from the description given. The original plant is still in existence, as I saw it in the same place a few weeks ago. The flowers are beautifully shaped, not too full, perfectly smooth, and of the purest white; a strong grower, very floriferous, and given to throw up autumn spindles, which frequently prolongs the blooming season of it until Christmas or past. In addition the pods never burst, and the fragrance excels in sweetness any variety of Carnation I know. Mr. Fletcher raised many varieties of Carnations and Picotees which have made themselves a name, some of which he has left behind, which I have no doubt will be heard of in coming years."

— "W. J. M., *Clonmel*," writes as follows respecting one of the BEST EARLY OR SECOND EARLY POTATOES:—"I wish to endorse all Mr. Laxton has said on page 274 concerning Beauty of Hebron Potato. I had twelve early varieties, three only introduced last year, all treated alike, and this comes first for use, and also both as to quantity and quality. Early maturity and size are very desirable, but to my mind quality stands first. Here I should like to ask if the cooking test was applied by the Judges at the National Potato Show, and if not, how was quality ascertained by them?"

— AS will be seen in our advertising columns, Messrs. Protheroe & Morris announce that they will sell by auction at the Mart, Tokenhouse Yard, E.C., on October 5th, at 2 P.M., the freehold estates known as MESSRS. OSBORN & SONS' NURSERIES, situated at Sunbury, Fulham, and Hampton. On October the 17th also a sale of plants will be held at the Sunbury Nursery.

— PARTS 22, 23, 24, and 25 of Messrs. Cassell & Co.'s re-issue of "PAXTON'S FLOWER GARDEN" are now to hand, and contain coloured plates of the following:—*Rhododendron Rolissoni*, a rich red-flowered species in the way of *R. arboreum*, from Ceylon. *Oncidium sessile*, a Peruvian Orchid with bright yellow flowers, related to *O. excavatum*. *Lælia autumnalis* var. *atrorubens*, one of the additional plates representing a handsome variety, but scarcely doing justice to the rich tint which distinguishes it. *Bryanthus erectus*, a pretty Ericaceous shrub with pink *Kalmia*-like flowers. *Dendrobium transparens*, a delicate pink-tinted species, with narrow petals and sepals. *Allium acuminatum*, a Californian bulbous plant with rather showy flowers, the upper portion of the perianth divisions being rich rose, the lower white. *Epidendrum longipetalum*, a distinct species; sepals and petals narrow, claret purple; the lip white, margined with yellow and streaked with red. *Poinciana Gilliesii*, a beautiful figure of a handsome plant that is rarely seen, the bright yellow flowers, long red stamens, and elegant bipinnate leaves being very attractive. The "Gleanings and Original Memoranda" are continued in each number, several notable plants of recent introduction being described.

— A KENTISH newspaper records the following:—"MIGRA-

TIONS OF LADYBIRDS.—On Sunday, September 10th, myriads of ladybirds visited Bexley and its vicinity shortly before noon. Their stay was a brief one, but for a few minutes they completely covered the fronts of houses, and entered rooms where the windows or doors happened to be open. Such a visitation has not been experienced for years." Concerning this "J. R. S. C." writes:—"The ladybirds (*Coccinellæ*) have certainly been unusually abundant in 1882, a natural consequence of the excessive swarms of their special food—the aphides or plant lice. The latter insects are well known to perform migrations every season, probably in May and September, but the spring migrations have been more particularly noticed. The exact time of these depends upon atmospheric and other causes not yet positively ascertained. Ladybirds do not, I think, so periodically migrate, although various instances of the kind have been noted both on the coast and inland. From personal observation I can state that there was a migration of ladybirds across North Kent on August 31st, the day being tolerably calm. The east side of Ifield Church, near Gravesend, was thickly studded with these insects about noon, indicating the direction from whence they came. In the vicinity they abounded on hedges and walls, many were also moving along. Just one week later, on September 7th, to the north and west of Gravesend ladybirds were so numerous upon the hedges, also in the gardens and fields, as to suggest that there had been an arrival during the night and early morning. This was another calm day. Upon the Hawthorn I examined a number of the insects, and they appeared to be all busily engaged in depositing eggs. Is it the case that those ladybirds which thus migrate are principally females?"

NORTHAMPTONSHIRE HORTICULTURAL SOCIETY.

ALTHOUGH many good horticultural exhibitions have been held at Northampton, and usually in connection with the annual Show of the County Agricultural Society, which is one of the most popular and flourishing of the county societies, and at intervals visits the county town, no regular horticultural society has hitherto been established. Advantage was, however, taken last spring of the intended visit of the Agricultural Society by several influential horticulturists, under the able direction of Mr. John Perkins, to call into existence the new Society, which held its first Exhibition on the racecourse at Northampton conjointly with the agricultural meeting on Thursday and Friday last, and the results of their efforts must undoubtedly be not only gratifying but encouraging to the promoters, as the Show was a large as well as a very successful one. Fortunately a favourable change in the weather on Thursday conduced to the comfort of the visitors, as the site of the Show, although a convenient one in other respects, would in case of much wet probably have been an unsatisfactory one. Preparations were being made for lighting up the tents in the evening by electricity, but this afterwards proved a failure, much to the disappointment of the visitors. Six large tents were filled with the various exhibits for competition, the local nurserymen, Messrs. John Perkins & Son and Messrs. Ball & Son, each also having tents for their own use.

In the competition for twelve stove and greenhouse plants, six in and six out of bloom, Mr. James Cypher, Cheltenham, was first with a very fine collection, consisting of *Cycas revoluta*, *Kentia Fosteriana*, *Thrinax elegans*, *Cordyline indivisa*, *Corypha australis*, *Crotons Johannis* and *majesticus*, large; *Ericas Irbyana*, *Marnockiana*, and *verticillata*, *Anthurium Schertzerianum*, and well-flowered specimens of *Stephanotis floribunda* and *Clerodendron Balfourianum*. Mr. J. Day, gardener to A. Seymour, Esq., Norton Hall, Daventry, was second with very fine and healthy plants, his collection containing a fine golden variegated seedling *Gymnogramma*. Mr. James Parker, Rugby, was third, his plants not being up to the usual exhibition form in which he has frequently appeared this season. For the group of miscellaneous plants Mr. Parker made a very handsome and effective display, and was placed first. For six exotic Ferns Mr. Parker was again first, his collection containing good specimens of *Adiantum trapeziforme*, *Neottopteris australasica*, and *Lomaria intermedia*. For six ornamental-foilage plants Mr. Cypher was first with a very fine *Cycas revoluta*, *Thrinax elegans*, *Cordyline indivisa*, *Dasylium acrotrichum*, and *Crotons Disraeli* and *majesticus*. Second honours deservedly fell to Mr. Farr, gardener to Sir R. Knightly, Bart., Fawsley Park, Daventry, who had very fine specimens, most promising amongst them being *Alocasia macrorrhiza variegata*.

In the gentlemen's gardeners' class for ten stove or greenhouse plants, five in and five out of bloom, Mr. Day was first; Mr. Holland, gardener to W. Jeffery, Esq., Northampton, second; and Mr. Farr third, all the collections being highly meritorious and the competition

close. In the same tent was a fine specimen of *Ananassa variegata* from Mr. Fairbrother, gardener to R. Turner, Esq., Northampton. Coleus were unusually fine and in excellent colour, those in the first-prize collection from Mr. J. Day remarkably so, the varieties being Ada Constance, Mrs. Langham, Mrs. Pawle, Edith Sentance, Miss Simpson, and Mrs. Steddall. Mr. Day was also first for a collection of Begonias, all his own seedlings, and for six Caladiums; for the latter Mr. Garfurth, gardener to P. Phipps, Esq., M.P., Collingtree, was second. For six exotic Ferns Mr. George Kilburn, gardener to C. J. K. Woolston, Esq., Wellingborough, was first with fine and healthy plants of *Adiantum farleyense* and *cuneatum*, *Davallia Mooreana*, and *Microlepia hirta cristata*; Mr. Holland was second, and Mr. Day third, all having fine plants, but crowded in a very limited space. In Mr. Day's collection was a handsome and promising seedling silver variegated *Gymnogramma* with frizzled fronds. Fuchsias were in better form than usual for the midland counties, and Mr. Gardener, gardener to Sir Hereward Wake, Bart., Courteen Hall, Northampton, had large, handsome, and well-flowered specimens of Conqueror, Beacon, Rose of Castile, Extraordinary, Alexandra, and Sir Colin Campbell. Mr. Kilburn, who was placed second, had also large and handsome plants. For double Zonal Pelargoniums Mr. Abrahams, gardener to Mrs. Hensman, Northampton, was first.

Table and miscellaneous plants were also attractively and largely shown by several exhibitors, and also a collection not for competition from Mr. R. Cole, gardener to the Right Hon. Earl Spencer. In Messrs. J. Perkins & Sons' tent were several very fine double Zonal Pelargoniums, including a remarkable specimen of *Guillaume Mangilli*, also two very attractive single Zonals—Mrs. Gordon, a large bright vermilion scarlet with white eye, and Bacchus, very fine deep crimson. In Messrs. Ball & Sons' tent was a stand of cut blooms of very promising single seedling Zonals, but the varieties were not named; they also exhibited good stands of single Dahlias and Carnations. Both these exhibitors made really interesting and worthy displays.

For dinner-table decorations Mr. Parker was awarded first, Mr. Cypher second, and Messrs. Ball & Son third; Mr. Cypher's table appearing to many to be in particular good taste, although it would be unjust to carp at the unenviable task of the Judges where taste is necessarily a matter of opinion.

For the collection of nine varieties of fruit, Pines excluded, Mr. J. Day was first, having good Black Hamburg and Muscat Grapes, and very fine Peaches in variety. For three bunches of black Grapes Mr. Cole was first with very even and highly finished Black Alicantes, Mr. Thomas being second with Gros Colman, Alicante, and Madresfield Court, all handsome bunches. For three bunches of white Grapes Mr. Day was first and Mr. Turner second with good Muscats, Mr. Thomas deservedly carrying off the heaviest-bunch prize with a grand example of Gros Colman, Mr. Cole coming second with Gros Guillaume. Handsome Pines and Grapes not for competition came from Mr. J. Carr, gardener at Delapré Abbey. Outdoor fruit was not largely shown, Apples and Pears being especially below the usual standard in size and appearance; a good-looking Pear named Alexandrina, and Golden Skin Apple, a bright golden-coloured Codlin from Mr. Frank Coles, Wellingborough, being, however, worthy of note. In the amateurs' class for six varieties of fruits Mr. J. Richards, Tansor, Oundle, had a very good collection, and took first place.

Vegetables are perhaps nowhere grown better than in the neighbourhood of Northampton, and it would not be difficult for an unprincipled exhibitor at times to purchase a good winning collection of show vegetables from the ordinary green stuff which comes into Northampton market. On the present occasion the gardeners', amateurs', cottagers', and market growers' tents all furnished specimens of high quality. Potatoes were generally fine, regular, and clean of the usual show sorts. Messrs. Perkins' Snowdrop was frequently shown and in good form, and its appearance indicates it to be a desirable variety. Enormous Veitch's Autumn Giant Cauliflower measuring 45 inches in circumference came from Mr. G. Oram, gardener to Mrs. Whitworth, Dallington Hall, and white Spanish Onions 5½ inches in diameter and quite sound from Mr. Day, who also took first prize for three handsome Telegraph Cucumbers. He was also placed first for the twelve varieties of vegetables, all his exhibits being good, Turnips and Telephone Peas especially so; but by far the finest Peas in the Show were in the cottagers' tent from Mr. Thomas Goode, Daventry, and appeared to be the almost extinct General Wyndham type of Ne Plus Ultra. Better Peas than these are rarely shown under any circumstances. The Rev. C. H. C. Hamilton, Chadstone Rectory, Castle Ashby, was a good second for the collection of twelve varieties of vegetables. For the collection of six varieties Mr. S. Allen, gardener to H. S. Pritchard, Esq., Alrugton Abbey, was placed first, and Mr. Oram second. In the market growers' department Mr. E. Rowe, Sheep Street, Northampton, was first both for the collections of vegetables and Potatoes; but upon the whole the legumes here were not equal to those in the other tents, the cottagers evidently leading in vegetables to the credit of the local leather industry, the toilers in which find agreeable and profitable relaxation in the good garden land of the locality. In the cottagers' tent very fine Trebons Onions were shown by Mr. Hickman, Kingsthorpe; White Spanish, almost equally fine, and excellent Intermediate Carrots from Mr. Philip Blencow, Long Buckby. Cut flowers were evidently suffering from the effects of the excess of wet, Roses especially so, the best twenty-four and

twelve coming from Mr. F. Perkins, Leamington; Mr. Parker, Rugby, having a first for twelve good *Gladiolus*.

There were many minor points in the Exhibition worthy of note, but want of space would preclude justice being done to all in so large and important a gathering.

RAVAGES OF CATERPILLARS.

MOST of us have cause to remember that during the last spring we had a storm which left its marks on our fruit and forest trees, the flowering of the Horse Chestnuts being completely spoiled, and the Pear trees in the open so much bruised about that they have never quite recovered. It was asserted by some writers that the salt spray was driven inland to a distance of forty miles or more, and thus assisted the wind to commit the terrible havoc on our trees which many of us have still to deplore.

Be this as it may, I found later on in the season that the storm was getting the credit for damage of which it was entirely innocent, that many people were put on the wrong scent as it were, and I therefore sent a letter to the *Times* on the subject, of which the following is an extract:—

"Living on one of the most beautifully wooded estates in this country, I have been greatly alarmed these last two seasons at the terrible havoc committed by myriads of caterpillars on the foliage of our stately Oaks and other trees which adorn the landscape, and when well managed bring a goodly return to the proprietor. Last summer I saw hundreds of Oaks in a batch as bare of foliage as they had been in midwinter; but they had made a little growth before the total destruction of foliage, and this little, however imperfectly matured, would assist the tree to drag out a lingering existence for a year or two. But this season the state of things is more alarming. The ravages having commenced unusually early, and the leaves of many trees being eaten as fast as they appear, little or no addition can be made to the growth of the tree. Now, any person who knows anything of the rudiments of vegetable physiology must be aware that the evil will not be stationary. If no growth is made for two or three years in succession the trees must die, and the blank they will leave is too dreadful to contemplate. The Oak so far has suffered the most, but hardly any timber tree or deciduous shrub appears to come amiss to the palate of these detestable little creatures. Much as we shall sigh over it, we can afford to have our Rose bushes disfigured and our Apple trees made barren—and I may say there is every prospect of both—but to lose stately Oaks which have beautified our landscapes for two or three centuries would be nothing short of a national calamity, and it behoves us to see if anything can be done in time to prevent or mitigate the evil."

I next pointed out that since the two very severe winters lately experienced insectivorous birds had become scarce, and starlings especially, which used to abound in this neighbourhood, had been reduced in numbers apparently to only a few hundreds, and recommended landowners and others able to make their wishes respected to look after the preservation of insect-feeders by preventing bird-nesting as much as possible and the insane practice of rook-shooting. The preservation of Owls is also recommended, and the destruction of rats and mice.

As I had anticipated, my account of the cause of the defoliation was challenged, and a gentleman who can write better than myself, but who evidently is not so close an observer, attributed all the mischief to the storm, and his beautiful poetical writing evidently carried many readers with him. I therefore sent some specimens of the caterpillars and their work to Miss Ormerod who kindly replied as follows, and gave me permission to use her letter as I thought best.

"Dunster Lodge, near Isleworth, June 19th.

"I have examined the injured Oak sprays and caterpillars that you have been good enough to forward me, and my opinion is that the trees are suffering from the attack of the exceedingly destructive caterpillar of the winter moth, the *Cheimatobia brumata*.

"This grub frequents almost all our common deciduous fruit and forest trees, and will clear the soft part of the leaves and then finish off as food gets scarcer with everything eatable, including the buds; consequently they are quite exceptionally injurious, and are a perfect scourge in some of the continental forests. Other caterpillars were present with them, but I did not find any traces nor more than one specimen of the caterpillar of the 'common leaf-roller moth,' the *Tortrix viridana*, which is the other great enemy of our Oaks.

"The leaf-roller moth has bright green fore wings, and its caterpillars are leaden or greenish colour; the winter moth has greyish-brown and ochrey fore wings, and the caterpillars are green or dingy with whitish lines along the sides and form a loop when they walk.

"Apparently nothing can be done, on the large scale of operation needed, to check forest attacks by the 'leaf-roller,' excepting to protect the birds; but as far as my own opinion goes, I would not include the sparrow. I believe investigation of the food in its crop proves it to be by no means a helper, and its habits in driving away other helpful birds make it a very doubtful good.

"The winter moth, now under discussion, lies more in our power, from the females having such abortive wings that they are obliged to creep up the tree trunks to lay upon the branches. They appear in early winter—November and December—and from sundown to about ten in the evening may be seen at their work. Therefore, if in good time a number of haybands or bands of any rubbish were twisted up, and when the season comes two men were sent round with directions to soak these in anything preferred of the nature of tar—tar and cart-grease, tar and oil—or anything the moths could not cross, and to lay one of these bands round the stem of each tree, the tree would be isolated.

"This remedy is one found to act practically, it is not expensive, and a couple of men would soon apply it to a very large number of trees. If preferred, fresh gaslime might be thrown in a ring round the trunk. This should not touch the bark, neither should the tar; but so long as something is laid round the tree which the moths cannot cross, so long is the tender leafage within as safe from

attack of these caterpillars as lambs in a foldyard from the fox outside the enclosure.

"The amount of attack of this moth depends very much on the weather. If the ground is frozen hard in November it is manifest it cannot come up through it; also much rain when the caterpillars are moulting is bad for them, and also such wet weather as will thoroughly soak the ground in which the chrysalids lie will destroy them.

"Yours truly, ELEANOR A. ORMEROD,
"Consulting Entomologist of the Royal Agricultural Society."

Let us hope, then, that the large amount of rain we had before the caterpillars came to maturity will have destroyed a great many of these troublesome creatures. It is marvellous to see the way in which the trees, which up to near the middle of July were "as bare as in midwinter," have recovered as to foliage; but the growth is still very soft, and I am afraid the frosts which we are already experiencing will prevent it ripening fully.—W. TAYLOR.

THE CHEMISTRY OF MANURES.

I WILLINGLY reply to the questions put to me by "INQUIRER"—though he will permit me to observe that the first of them, "Is it the intention of 'J. B. K.' to affirm that a good garden soil can be enriched in nitrogen or potash, or phosphoric acid, or any other constituent of plant life, by admixture with a manure which is more deficient in these elements than itself?"—hardly expresses any practical question arising out of the discussion. What actually occurred was, that Mr. Taylor spread on the surface of a border which had been exhausted by the production of probably 8 or 10 lbs. of fruit, wood, and leaves per square yard, a dressing of about 1 inch thick, or some 50 or 60 lbs. per square yard, of soil which has been enriched with a quantity of solid excreta and a portion of liquid excreta equal to that which one individual would supply during a week; for this is about the quantity indicated by Mr. Taylor's statement, that he obtains the earth which has been used by fourteen persons during six months, and that this (as I understand) is sufficient for only half his border, or for an extent of 360 square yards. Now, what is the nature of the addition thus made? Assuming excreta of average quantity and composition, and that one-sixth of the daily urine voided is included, these 360 yards will receive annually (in addition to whatever value there may be in the earth itself, or the burnt clay employed in the closets), the following ingredients in pounds:—

	Supplied to border.	Rate per acre.
Nitrogen	18	250
Potash	4.2	60
Pho-phoric Acid	8.7	120
Lime	3	43
Magnesia	2.6	37
Oxide of Iron	0.7	10
Sulphuric Acid	0.6	9
Chlorine	6.5	95

This would be very nearly equivalent to a dressing at the rate of 30 cwt. of good guano per acre, or two-thirds of a pound per square yard, and such an application is obviously a very rich dressing. But while in the concentrated form of guano it can bear the cost of transport from Peru, if it were diluted with one hundred times its weight of common earth, which is its form when obtained from earth closets, it would not pay for its transport from the next parish. This is in fact the whole difference between guano and earth-closet manure. When circumstances permit the latter to be obtained without any charge for carriage it is as good as guano, provided enough of it be used; and Mr. Taylor is able to use, and does use, enough.

The second question—"Does 'J. B. K.' consider that earth-closet manure is really superior to that prepared by Messrs. Arnold & Co., for instance, for manuring Vines?" is virtually answered by what I have already said. The one is diluted and weak, the other is concentrated and strong; but if a pound of the earth is obtained at less cost on the spot than one-eighth of an ounce of the artificial manure, then it is the cheaper of the two. Whether it is the better depends entirely on how it is used. For a single application, to last through the season, earth-closet manure in adequate quantity is undoubtedly the better; but artificial manures have one advantage in the fact that they can be varied so as to supply the special demands of the plant at different seasons. Aware of this, Messrs. Arnold supply different preparations for use in spring, summer, and winter; the first containing, I believe, more nitrogen to support the earliest growth of leaves and wood, the second more potash to swell and firm the berries and ripen the wood, the third more phosphoric acid to encourage the growth of roots. In like manner the best farmers use both farmyard dung for the mainstay of their crops, and add during their growth special dressings of soluble forms of nitrogen, potash, phosphoric acid, or magnesia as may be required by the special crop; and when a gardener can do the

same he will probably find some benefit in it. In my own case, having no earth-closet manure, but having the advantage of a farm in which much cake is consumed by cattle under cover, I profit by the fact by giving the Vines in early summer a mulching of straw manure, both to keep the soil moist and to enrich the waterings; but I precede this with some waterings in which the urine of the cattle is administered, and these again are preceded by waterings in which artificial manures are dissolved, so as to supply the roots when they first start into growth with all that they require at the time of greatest pressure. No doubt if I had only one of these resources I could so arrange as to make it suffice. So Mr. Taylor, having an excellent manure of what may be called a universal character, makes it answer with the help of lime to quicken its decomposition and make it most soluble in early spring, while with copious waterings he washes out any superfluity. It was to gardeners who have not any of these resources that I recommended the artificial manures compounded for them at reasonable rates by a competent and respectable firm. I do not call them better than natural manures, but administered with due care they will act as well, and often they will be found a most serviceable addition.

The accidental delay of a week enables me now to advert to the letter of Mr. Boyle in the last number of the Journal. In the first place, the fact of his being a vegetarian does not of itself make the earth-closet manure less rich. The human body must have a certain supply of nitrogen and minerals whether derived from animal or vegetable food. Many vegetables contain as much (or, as Sir John Lawes has shown, often more) nitrogen than there is in meat with its usual proportion of fat; and a vegetarian, therefore, probably consumes and excretes as much as a flesh-eater, possibly even more in a solid form, for the solid excreta contain the undigested portion of the food, and a smaller proportion is digested of vegetable than of animal food. But, secondly, in all cases of the use of earth-closet manure there is a doubt, which only analysis can solve, how much virtue is in the earth itself before its use. Thus, for instance, Dr. Voelcker found that the earth employed in the Wakefield Prison had itself the composition of a "rich garden mould," and if we put the commercial value on the ingredients he found in it we shall find it would be valued as manure at 7s. 7d. per ton. Add to this 3s. or 4s. additional value after its use (supposing it employed in a private family instead of a prison) and we have say 11s. per ton as its true commercial value, which is double the ordinary price of farmyard manure. But even supposing the original earth used by Mr. Boyle, Mr. Taylor, or others is not so rich as this, we may observe that Mr. Boyle says it is "bulk for bulk worth double the amount of dung." But earth is greatly heavier than farmyard dung as it is loaded into a cart or harrow, probably quite twice as heavy, and therefore "bulk for bulk" would give twice the real quantity by weight of earth as of dung on an equal space of ground. But finally, and this is perhaps most important of all, the earth-closet manure contains all its ingredients in a state of complete disintegration, and thus ready for immediate decomposition and use by the plants, while farmyard dung is lumpy, wet, and consequently very slow in its action. The virtues of the former will be given out to one crop (as Mr. Taylor illustrates, for he gives his heavy dressing annually), while of dung the effect does not half appear in the first crop; it partly accumulates in the soil, and partly is lost in winter washings. This fact is probably a main reason why earth-closet manure shows on all crops to such immediate advantage, and if dressings are given of twice the weight of the dung with which it is compared there is no wonder it seems greatly superior, as in fact for one crop it is.—J. B. K.

Cows and horses are all strict vegetarians, and it is not suggested that farmyard dung is not so good as if the stock were fed on animal food. How, then, does Mr. Boyle make out that his vegetarian diet detracts from the fertilising qualities of his earth-closet manure? No doubt Dr. Voelcker's opinion is entitled to much respect; but everybody who has used earth-closet manure can testify to its value as a powerful fertiliser. The great pity is that so much valuable manure is allowed to pollute our rivers and poison our streams through the length and breadth of the land.—PETER FERGUSON, *Monk Wearmouth*.

In a general sense, the manure most suitable for any given soil to increase its fertility is that which contains those constituents in which the soil is most deficient. The illustrious Liebig has enunciated what he calls a law of minimum, which he expresses as follows:—"Every field contains a maximum of one or several, and a minimum of one or several nutritive substances. It is by the minimum that the crops are governed, be it lime, potash, nitrogen, phosphoric acid, magnesia, or any other constituent."

Since the days of Liebig, however, the researches of Ville, Lawes, and Gilbert and others, have shown that the deficiencies in soils brought about by ordinary agricultural practice may be confined to three or four of its food constituents—viz., nitrogen, phosphoric acid, potash, and lime. The amount of these constituents present might therefore be said to govern the fertility of the soil, providing they exist in an available condition, and the physical characteristics of the soil are such as to allow of their favourable action. A liberal use of farmyard manure tends to keep a fertile soil in its normal condition, prevents its exhaustion, and in many cases even improves it; but unfortunately the supply of this

general manure is insufficient for the purpose, and recourse has to be made to more concentrated forms of the individual food constituents. Nitrogenous manures for gramineous crops, phosphatic manures for root crops, and potassic manures for leguminous crops, are those which produce the best results. These have been termed special manures, and their use is attended with considerable economy, since their application to the crops specially requiring them gives the best results with the least expenditure. It is necessary, however, that all other food constituents should be present in sufficient quantity, since, as Liebig states, the fertility is governed by the constituents present in minimum quantity.



Fig. 48.—*RUDBECKIA CALIFORNICA*. (See page 300.)

There is but little doubt that many discrepancies observed in the action of special manures are due to this cause. But little good, of course, will result from the application of special manures in cases where the soil already contains a sufficient quantity of the food constituents supplied in the manure. Great injustice has been done to artificial manures, and their efficacy has often been questioned, in consequence of their indiscriminate use on soils which do not actually require them.

Excepting the facts known regarding the special requirements of our ordinary cultivated crops, the cultivator has but little to guide him in the application of special manures. It is often a question whether this or that manure, which perhaps he could obtain at a moderate cost, would have a beneficial effect upon his

soil, and whether the result would be such as to compensate the expense involved. At present he knows but little of the latent resources of his soil beyond that he obtains from a knowledge of the crops which succeed best on it. This knowledge, although only of a comparative nature, is, however, of considerable value; for instance, suppose he finds that he can grow fair crops of corn but cannot succeed with root crops, from inference he may conclude that his soil was most probably deficient in phosphates.

The actual amount of food constituents in the soil, whether in the latent or available conditions, can only be ascertained by means of an analysis, which requires to be made by persons having the requisite skill and chemical knowledge. By means of an analysis the composition of the soil can be compared with

that of others of known fertility, and a deficiency, or otherwise, noted.

The method which is best adapted for ascertaining the effect of manures is that of field experiments. These are within the power of every cultivator, and are to be strongly recommended for more reasons than one. A small plot of land, or, in cases where the soil varies, representative portions of the several kinds, set apart and worked for purely experimental purposes, would tend to give an insight into the nature of the soil he has to work, and also confidence in the result of operations, far better than any other plan that could be adopted. The conditions existing in the soil tending to influence the action of manures would exert themselves on a small scale as well as on a large, and would influence the results, as shown by the increase of produce, quicker growth, and earlier maturity in the same degree.—GEORGE GRAY.—(*New Zealand Journal*.)

YELLOW COMPOSITE FLOWERS.

RUDBECKIA.

FROM the time when Leopard's-banes begin to flower in April to the sunny days of October when the borders are brightened by the later Sunflowers, few gardens where hardy herbaceous plants are grown at all are ever without some yellow Composites in flower. It is easier to have too many of them than to do without them, so it is as well to select the most ornamental kinds. A large proportion of them belong to North America, and some are in consequence rather difficult to cultivate in cold soils and sunless climates like those of West Cheshire, and therefore anything which will thrive in my garden has the merit of being quite hardy in nearly every part of the kingdom; though in the extreme north of it, or at high elevations above the sea level, many of the late-flowering species will hardly flower at all after cold summers.

I propose to begin by speaking of Rudbeckias, amongst which are some of the most ornamental of the class. They are distinguished by having the centre of the flower raised as soon as the flower opens, either in the form of a cone or of a hemisphere, the broadest part of the raised centre being where it touches the base of the rays or petals of the flower, whilst in some allied genera, like the *Helenium*, the receptacle of the florets expands like a ball from its base. The Rudbeckias are in sad need of a monograph, and I am quite unable to give anything like a synopsis of the genus, but can only mention some half-dozen kinds which I have in cultivation, and which are sold under various names, and I have done my best to reduce these names to something like order.

The first to flower is *R. laciniata*, which grows with me from 5 to 7 feet high. It comes out in June and continues in flower till September, the flowers being pale yellow, about 4 inches across, abundantly produced, elevating their centre into a conical form. The leaves are large, much divided into irregular curved straps, pointed at the ends. The stem is much branched. Though a coarse plant, from its large size it makes a great show for the back row of a long border. It requires frequent division to prevent the stalks being overcrowded and to encourage lateral stems. *R. digitata* resembles the last, though quite distinct from it, but is thought to be no more than a variety; with me, however, it grows 2 feet taller, being from 7 to 9 feet in height. It begins and continues to flower fully a month later. The flower centre, instead of being conical, is hemispherical, and the leaves are divided into three broad incised lobes. I have described these two plants by the names I have found generally adopted, but in Loudon's "Encyclopædia" the two names appear to be transposed.

R. californica (fig. 48, p. 299) is the handsomest of the tall-growing kinds. It grows with me from 5 to 6 feet high. The leaf is large and woolly, not much divided, oblong in form, and pointed at the ends. The flowers are borne upright on uprightly branched stalks, and are large, of great substance, dark rich yellow in colour, with a tall conical black centre rising like a cylindrical column to a height of 2 or 3 inches from it. It flowers in July and August, and though the flowers are not so abundant as those of the species above described, they are far more showy. It is sometimes grown as *R. columnaris*, a name which would seem to suit the form of the flower; but *R. columnaris* as figured in Curtis's "Botanical Magazine," No. 1601, is certainly quite a distinct plant, and one which I have never seen in cultivation.

R. maxima I raised two years ago from seed imported from America by Mr. W. Thompson of Ipswich. One or two plants have flowered this season, but not well, and I fear that it wants warmer summers than it finds in Cheshire. The leaf is large, smooth, and glaucous, oval in shape. The flower seems liable to be deformed by a mass of leafy bracts. It is large and light yellow, and the plant may do well in warmer and more sunny parts of the country. The plants are about 4 feet high.

R. speciosa is commonly called *R. Newmanni* in gardens, but

the latter name is repudiated by botanists. It is too well known to require description, and is generally thought an indispensable autumn plant. The time to divide it is when it is going out of flower in autumn. A top-dressing of leaf soil during summer will make it root at all the joints, and cause its increase to be unlimited, and another good dressing when transplanted will make every rooted shoot into a large plant by the next year's flowering time. The colour of the disk or flower centre varies from rich velvety green to black, and the leaf varies much in roughness. I have had a strong-growing rough-leaved form of the plant sent to me as *R. hirta*, but it seemed hardly distinct from *R. speciosa*, though I have never been able to meet with any other *R. hirta* in cultivation.

R. fulgida resembles a small form of *R. speciosa*, and I find the names confused, but it is a plant which I have never been able to keep, as it pines away and dies in cold wet summers. It is in every way inferior to *R. speciosa*, but flowers earlier.

The latest of the Rudbeckias to flower amongst those which I know is *R. subtomentosa*. It is an elegant and refined plant compared with the larger examples of the genus. It makes a rather slender growth of about 4 feet high. The flowers are deep yellow with a black centre, borne on lateral branches nearly all up the stem, and turned sideways. It increases slowly, but I find that, like nearly all the class, it may be grown from side shoots about 3 inches long if taken off when young. It is better suited to the south of England than to the colder counties, where it hardly completes its flowering before it is spoilt by the frost; but after a warm summer it is one of the neatest and prettiest Composites I have. Besides the purple-flowered species, commonly called *Echinacea*, the above are all the Rudbeckias I have ever seen in gardens, though I find several others described which I should be glad to have an opportunity of obtaining.—C. WOLLEY DOD.

APPLES AT THE EXPERIMENTAL GARDENS AT GIRTFORD IN 1882.

THE garden at Girtford, lying in a valley, is much subject to the baneful influence of spring frosts, the effects of which are intensified by the warm and exciting character of the soil, and the consequence usually is that the blossom of early Apples, as well as that of Pears and Plums, is greatly injured; in the past spring, however, a minimum of harm was experienced from that cause, and a fair crop of Apples has been secured.

The following varieties have during the last four years shown themselves constant and reliable bearers at Girtford—viz., Mr. Gladstone (Premier), Early Julien, Cellini, Schoolmaster, Missouri Pippin, Stamford Pippin, and Court Pendû Plat. Mr. Gladstone is a very handsome Apple, somewhat of the character of the Early Margaret, but larger, higher coloured, and otherwise distinct, and to my mind is the best of all the early market eating Apples, but it must be gathered and consumed as soon as ripe. Mr. G. Bunyard, the experienced Kentish grower, also informs me this is the opinion he has also formed of it. Early Julien is also a most valuable Apple either for cooking or dessert, as it may be gathered at the same time as Margaret, but will hang on the tree or keep sound for months if gathered. There are no two early Apples to equal these. The valuable properties of Cellini, especially in the dual capacity as a kitchen and table fruit and its remarkably handsome appearance, are too well known to need comment.

The large and handsome new Apple Schoolmaster, which comes in season in October and continues till January, is also a most prodigious bearer, and has not failed during the past four years, even when Keswick and Lord Suffield have fallen short; the young trees also appear to be productive. Stamford Pippin, my own first venture in horticulture, is of all the sorts I have ever seen the most prodigious bearer; and here in 1879 and 1880, when very few Apples bore a crop, Stamford Pippin was laden both on bush and standard, and this year it hangs in ropes on the boughs, which are almost borne to the ground with fruit. The good qualities of this Apple are not as yet, I think, generally appreciated, although I know a few pomologists who are well aware of its excellent flavour and great productiveness, and say that it will bear comparison for quality with the Ribston. I take exception, however, to its being classed, as it is sometimes treated, as a cooking fruit, for although it is adapted for that purpose also, there are many other Apples of the same period equally good for the kitchen. Missouri Pippin is a medium-sized fruit of handsome appearance and good keeping qualities, received here from the Continent, but I believe it to be of American origin; it is also wonderfully prolific on very young trees. Court Pendû Plat, which is the latest to blossom of all Apples, is consequently a

constant and reliable bearer, and one of our best late Apples for dessert.

There are many other well-known Apples which have this season carried good crops at Girtford, such as Cox's Orange Pippin, Lord Suffield, Keswick Codlin, Ecklinville Seedling, Golden Noble, Warner's King, Bedfordshire Foundling, Hawthornden, King of the Pippins, Early Strawberry, Franklin's Golden Pippin, and Cockle's and Sturmer Pippins. The chief failure is in Wellington or Dumelow's Seedling, which has only a quarter of a crop, and fewer still in the past three years, owing perhaps to the effects of the severe winters of 1879 and 1880, which played sad havoc amongst the trees of this variety. On the other hand, for the first time in thirty years I have a fair sprinkling of fruit of Blenheim Pippin both on young trees and standards.

Amongst the recent varieties tried here, Repa, a very early flattish round variety with pale skin, a medium-sized American Apple, appears well worth growing. Red Bertigheimer, a noble-looking fruit of a beautiful waxy pale crimson exterior, and with tender crisp flesh, appears to be a valuable introduction, also from America. Tetofsky, of the Lord Suffield type, but earlier; Primate and Williams' Favourite are fruits of much promise, probably of Russian or American origin. D. T. Fish (Warner's King), very large and good, but sometimes coming ugly; Lord Grosvenor, a very fine but later and firmer-fleshed; Lord Suffield, Grenadier, Lord Derby, and Prince Albert (Lane), Lord Burghley, and Peasgood's Nonsuch (the finest fruit in the garden), are all desirable acquisitions. Several promising seedlings, the productions of myself and others, are being tested, and I venture to prognosticate something good from a cross between Mr. Gladstone and Early Julien.—T. LAXTON, *Bedford*.

"THE NEW BOTANY."

UNDER the above title a lecture on the best method of teaching the science, by W. J. Beal, Professor of Botany in the Agricultural College, Lansing, Michigan, U.S., has been issued in pamphlet form by C. H. Marot, Chestnut Street, Philadelphia, and well merits the attention of all engaged in teaching botany in this country, and also of those who are about to study it. Some excellent directions are given as to what should be the objects in studying natural science, and the best modes of cultivating habits of correct observation. A few extracts will indicate the author's purpose, and doubtless prove advantageous to some readers. Discussing the advance in botanical science, the writer observes—

"Before fully considering the new botany let us glance at the old. Aristotle, Pliny, and other Greeks and Romans paid some attention to plants. So did the Arabs of the twelfth century. Still later Grew, Tournefort, Ray, and many others studied plants and wrote about them. A little progress, and but very little, was made in classification and description. Not until the last century, about 1735, less than 150 years ago, did botany begin to take rank as a science. This was largely due to Linnæus of Sweden, who well earned the title of 'Father of Botany.' His efforts were largely devoted to describing and classifying plants, and were ably continued by the four Jussieus, Robert Brown, A. P. De Candolle, Lindley, Endlicher, and their contemporaries. Except for medical students, botany hardly found a place until within the past forty years. Even in the higher educational institutions, and as late as 1850, botany was usually only considered a pleasant and proper pastime for young school girls. As generally pursued, the study consisted mainly in learning from a book the forms and names of roots, stems, leaves, inflorescence, and the several parts of flowers and fruits. The teacher was supposed to be a dried-up old fossil. He wore odd-looking clothes. He taught the class from the text-book, and preferred to pursue the study in winter, that the pupils might learn the names and peculiarities of plants before they appeared in the spring. There were many hard unfamiliar names. With no specimens to illustrate the lessons, and a dry teacher, most of the pupils acquired a thorough disgust for the study long before warm weather furnished materials for illustration.

"From 1770 to about 1800 Wolfe and Goethe of Germany and A. P. De Candolle of France developed new ideas of plant morphology. Schimper, Braun, Dunal, and Røper aided in this work; but to no one are we more indebted for accurate information in regard to the difficult problems of plant structure and affinity than to Robert Brown of England. He was the most profound botanist of this or of any age. In this country Dr. Gray has long been foremost in developing and popularising the subject of plant morphology, which, for twelve years beginning with 1850, may be said to have been the leading idea in botany. The year 1862 will ever be memorable as the date in which appeared the classic work of Mr. Darwin on the fertilisation of Orchids. He caught the first glimpse of the subject from Sprengel; but to Darwin more than to anyone else are we indebted for the light thrown on the subject of fertilisation of flowers. Delpino, Ogle, Hildebrand, Bennet, Hooker, Lubbock, Kerner, Fritz

Müller, and Herman Müller, and a host of others in Europe and America, aided in rapidly making new discoveries in the same direction. In connection with this, many interesting discoveries have been made in reference to the motions of plants in climbing, catching insects, &c. Carnivorous plants have been examined and experimented upon. New modes have been discovered by which plants are distributed in various parts of the globe. From 1862 to 1875 in this country, what Gray calls 'How Plants Behave,' may be said to be the dominant feature in the science of botany."

Proceeding to the consideration of the modern and preferable methods of study, Mr. Beal states—

"What I have called 'The New Botany' began to appear in this country in 1862. It includes a study of the subjects as set forth by Darwin, Sachs, and others. It also includes a new or better way for students to learn the botany of our forefathers. In this we study objects before books; the pupil is directed and set to thinking, investigating, and experimenting for himself. To be constantly giving information in science makes intellectual tramps, and not trained investigators. Teaching the new botany properly 'is simply giving the thirsty a chance to drink.' It also creates a thirst which the study gratifies, but never entirely satisfies. This plan, in a general way, has been again and again brought to the attention of our best teachers, some of whom are carrying it into practice. I will now enter into details as briefly as possible, and try to mark out a plan which may assist some who are always looking for the best way. Specimens are essential; a greenhouse or a botanic garden are useful even if they are small, but almost every neighbourhood will furnish materials in abundance, which may be found in the fields, woods, and by-ways. Before the first lesson each pupil is furnished or told where to procure some specimen for study. If it is winter, and flowers or growing plants cannot be had, give each a branch of a tree or shrub; this branch may be 2 feet long. The examination of these is made during the usual time for preparing lessons, and not while the class is before the teacher. For the first recitation each is to tell what he has discovered. The specimens are not in sight during the recitation. In learning the lesson books are not used, for if they are used no books will contain a quarter of what the pupil may see for himself. If there is time each member of the class is allowed a chance to mention anything not named by any of the rest. The teacher may suggest a few other points for study. The pupils are not told what they can see for themselves. An effort is made to keep them working after something which they have not yet discovered. If two members disagree on any point, on the next day, after further study, they are requested to bring in all the proofs they can to sustain their different conclusions. For a second lesson the students review the first lesson—report on a branch of a tree of another species which they have studied as before. Now they notice any point of difference or of similarity. In like manner new branches are studied and new comparisons made. For this purpose naked branches of our species of Elms, Maples, Ashes, Oaks, Basswood, Beech, Poplars, Willows, Walnut, Butternut, Hawthorns, Cherries, and in fact any of our native or exotic trees and shrubs, are suitable. A comparison of the branches of any of the evergreens is interesting and profitable. Discoveries, very unexpected, are almost sure to reward a patient study of these objects. The teacher must not think time is wasted. No real progress can be made till the pupils begin to learn to see, and to learn to see they must keep trying to form the habit from the very first, and to form the habit they should make the study of specimens the main feature in the course of training. In nearly all important cases specimens are examined, and a need is felt for a name or definition before these are given. The use of technical names is not avoided, nor are these 'thrust upon a student.' They are learned as they are needed—a few at a time from the teacher or a text-book. Common terms for science are usually too indefinite in meaning to answer a good purpose. The difficulty of learning technical names is often much overestimated. The discipline required to learn them is itself worth all it costs to anyone."

In succeeding chapters directions are given for observing the phenomena connected with the fertilisation of flowers, the visits of insects, carnivorous plants, the motions of plants, seed-distribution, &c., similar principles being inculcated in all.



HARDY FRUIT GARDEN.

RIPENING fruit will need attending to carefully, examining Peaches, Nectarines, Figs, and Plums daily, removing any as soon as ripe, the Peach and Nectarine with the finer dessert Plums being improved in flavour by placing them for a few days in a well-ventilated fruit

room. Birds are usually troublesome, hence late Peaches and Plums should be securely netted. Gather Apples and Pears as fast as they become ripe, and place them carefully upon the shelves of the fruit room. Care should be exercised in gathering these fruits as well in doing it at the proper time, for if gathered too soon they will shrivel, and if allowed to become too ripe they will be deteriorated in flavour or become mealy. The fruit so far as practicable should be placed singly on the shelves, and be examined occasionally, removing decayed fruit. Autumnal Raspberries will soon begin to ripen their fruit, and will need to be protected with nets. The crop of these, if the autumn be favourable, will prove very useful. The plantation should be formed in an open situation, the soil being well enriched at the time of planting. When the fruiting season is over the canes should be cut down close to the surface of the soil, carefully selecting the young canes in spring, and cutting away all weak or superfluous ones. Strawberries placed out after being forced will be setting the fruit for an autumnal crop, and will need to be protected with nets.

KITCHEN GARDEN.

Cauliflower plants are now ready to be transferred from seed beds. Select the strongest for placing under handlights, employing good strong loam so as to secure a sturdy habit, this being further insured by attention to ventilation, it being necessary at this season to afford full exposure to all such vegetables in frames. Prick out into frames the requisite number of the remaining plants from the seed bed for transplanting in spring. Dust with wood ashes or quicklime as a preventive of the depredations of slugs and worms. A few of the larger leaves should be bent over the heads of Cauliflowers coming into use, both to keep them white and as a protection in case of sudden frosts.

Assuming that the crops of Onions and Potatoes were lifted and stored during suitable weather, the ground with but a forking-over will be available for Cabbages and Lettuces, breadths of which should now be placed out. The Onion ground will be a suitable change for Cabbages, which to insure fine heads should not be less than 18 inches apart every way, and 6 inches more for the large-heading sorts. If not already done a number of plants from the seed bed should be pricked out for transferring to their final quarters in spring and secure a succession of heads in summer to those afforded by the autumn-planted Cabbages.

For the spring and early summer supply of Lettuces a somewhat sheltered situation must be chosen, the plants succeeding admirably in the intervening spaces where early Peas will shortly be sown 4 feet apart, a row of the Cabbage variety being placed at a foot on either side of the row of Peas, and a row of the Cos between those, which will give two rows of Cabbage and one of Cos between each two rows of Peas. If this method does not afford a probability of supply equal to the requirements supplementary planting must be made in a sheltered position. Where the soil is light it should be made moderately firm by being trod over once and then raked level, and the plants placed out in drills. Stanstead Park Cabbage Lettuce and the black-seeded Brown Cos are reliable sorts. Careful attention should be given the plants, all vacancies being kept filled up regularly, and dustings of soot, wood ashes, or lime be applied as needful to keep down slugs and worms. After the planting of the main crop of Lettuces is completed a number of plants of Cos should be pricked out into a prepared bed in a sheltered place for transplanting in spring.

Lose no opportunity of earthing up Celery which may require it. The earliest crops should now have a final earthing-up, drawing the leaves close together, firming the soil well about the stalks, and well beat down the banks of soil so as to exclude the rain as much as possible. Parsley which is sown in pits should be well thinned, kept free of weeds and decayed leaves, exposing fully on all but frosty nights, when the lights should be put on and removed during the day. If no provision has been made for a supply in severe weather spring-sown plants may now be lifted and placed in pits or in deep boxes or pots, which, placed in a Peach house or vinery from which the Grapes have been cut, will furnish a moderate supply in severe weather. Chervil may be treated similarly.

In order to obtain a supply of the more tender vegetables as long

as possible every aid or protection to such in the open air should be attended to in due time, as by preventing the evil effects of a few cold nights the supply of such may be prolonged—possibly for some weeks longer.

Accommodation must now be provided for the Lettuces and Endive, which are to be lifted from the open ground to give a continuation to the supply when that which is outside is either exhausted or destroyed. The earlier the plants are placed into their quarters the better, moving with good balls, firming the soil well about them, watering well, and exposing fully on all but frosty nights, when the lights should be put on, and withdrawn in the daytime. Where large supplies of salading are in demand in winter shallow pits with moveable lights, and the command of sufficient heat to exclude frost, are essentially necessary to providing it in good condition and with certainty.

French Beans sown in August in pits as advised should now have the lights over them, but be ventilated freely in favourable weather; indeed a little should be given constantly, and artificial heat afforded to maintain a minimum of 55° and 65° in the daytime. Water when necessary with weak tepid liquid manure.

Tomatoes on walls should have the fruit cut as they give indication of ripening, placing in a vinery or other dry house to accelerate the process, and when there is danger of frost cut all the fruit of any size and lay them out in a similar place to finish.

FRUIT HOUSES.

Peaches and Nectarines.—The trees in the house started early in the year to afford ripe fruit in June will now be shedding their leaves, and the trees having had a tendency in previous seasons to cast the buds, not set well or stone indifferently, which is a sure indication of the imperfect ripening of the wood. The roof lights in such case have not been removed, as this will tend to ripen the growth. Yet something more than this is necessary to rectify the evils above alluded to, which chiefly arise from too rich, loose, deep, and unrestricted borders; indeed, most fruit trees under glass are given far too much root space. Trees in the condition above indicated should, as soon as there is the slightest indication of the maturity of the foliage, be at once root-pruned. In a majority of instances it will be sufficient to remove the soil between 3 and 6 feet from the stem, and, making an examination of the roots, cut through the thickest and deepest, removing the detached parts, and also the soil down to the roots towards the stem, and, without disturbing them, supply fresh loam rammed well down, giving a good watering. This will cause the speedy resting of the trees, whilst at the same time new roots will be emitted, continuing more or less active through the winter. In some instances it will be desirable to detach the whole of the roots at the distance above indicated, according to the size and vigour of the trees.

In the case of trees that have long-jointed wood and that do not fruit satisfactorily they should be entirely lifted. In this case the whole of the soil should be removed down to the roots, and then, commencing at the point most distant from the stem of the trees, the roots should be carefully lifted from that point towards the stem, laid aside and covered. The soil should be removed down to the drainage, which should be rectified and covered with a layer of turves. Putting in a foot of soil, a layer of the roots should be spread out carefully and covered with about 6 inches depth of soil, and then the remainder of the roots, which should likewise be covered with 6 inches of soil; the smaller roots from the collar being laid out should be covered but lightly with soil. A good watering must be given, and a mulching of partially decayed manure about 3 inches thick. If the weather be bright shade during the operation and for a few days afterwards, and syringe occasionally. The trees will soon produce fresh roots, when the usual routine should be resorted to. This operation must be performed before the leaves fall. Rather strong loam is the most suitable for Peach trees, adding about a tenth of old mortar rubbish. Trees in succession and late houses may be treated similarly, but it must not be performed until the growth is completed and the wood somewhat hardened, or it may cause the wood to shrivel or die. In the case of young and other trees growing too luxuriantly a trench may be taken out at a third of the distance from the stem that the branches cover in extent of trellis, and the roots detached from the trench may be

filled up again, ramming well down, removing the surface soil from the trench to the stem, supplying fresh material and making firm. When the fruit is all gathered in the late houses the next object is to get the wood thoroughly ripened, which is best effected by removing the shoots that have borne fruit, cutting them out to a successional shoot at the base, and thinning out the shoots where they are too crowded.

Figs.—Trees in pots for early forcing must at once be attended to. If needful a shift into larger pots may be given; but as it is usually desirable to confine the trees to the same size pots, a few inches should be removed from the base when the trees are turned, cutting back the roots and re-arranging the drainage, which should be efficient; replace the soil removed with fresh fibrous loam having a slight admixture of road scrapings or old mortar rubbish, ramming hard; remove the surface soil, and replace with fresh material. Water thoroughly, and place where they can be well exposed to air without being subjected to heavy rains or frost.

Fig trees planted out should be kept drier at the roots, and be freely ventilated. When the second crop is gathered keep the house cool and dry, ventilating fully except when frost prevails. Any trees not ripening the wood freely should have a circulation of dry warm air secured to them by day, keeping them dry at the roots, but not extremely so; and when the leaves give indications of falling root-pruning or partial lifting should be resorted to.

PLANT HOUSES.

Stove.—The earliest and strongest Poinsettias should now be placed in the stove at a temperature of 60° to 65°, attending well to with weak liquid manure. The remainder of the plants should be kept in a temperature of about 55°, being careful in watering, for if overdone in that respect they will lose the roots and the bracts will be poor. These plants will form a successional batch to the first lot.

Euphorbia jacquiniæflora must not be kept in a lower temperature than 50°, and not be overwatered, or the roots will perish and the flowering be indifferent. *Sericographis Ghiesbreghtiana* must be placed in a light position, and when in flower will stand in a conservatory for some time. A few plants of *Plumbago coccinea superba* and *P. rosea* should be placed at the coolest end of the stove to succeed the earliest-flowering plants; similar remarks applying to other winter-flowering plants, so as to maintain a succession of bloom.

Nepenthes.—These are fine for decorative purposes, and should be grown by those having a stove. To insure their forming plenty of fine pitchers they should be grown near to the glass, and only have shade to prevent scorching. Good fibrous peat, with a fourth of potsherds and a sixth of chopped sphagnum, adding a sprinkling of charcoal, the drainage being very liberal, will suit them well. Although the spring is the time to pot them, now is the time to procure plants, as the growth being matured they suffer nothing in transit. Keep them near the glass through the winter, and pot in spring, 6 or 7-inch pots being large enough. Plants that have become tall should be cut down to within a foot or so of the pot, and remove the eyes from the upper part of the stem down to three of the lowest, but leaving all the leaves entire; and when the eyes left have broken and grown somewhat the upper part can be removed. The ripe part of the tops cut off will make cuttings. Cut into lengths of two joints each, leaving a portion of leaf to the upper joint, inserting them in cocoa-nut fibre refuse and sand in a case or covering with a bellglass, and keeping close and moist, greater part will be rooted by spring. The tops or soft portion are of no use for cuttings.

Nymphaea cærulea, *N. cyanea*, *N. dentata*, *N. Devoniana*, and *N. rubra*, flowering over a lengthened period, are very interesting; the flowers, in addition to being beautiful on the plants, are useful for cutting. A tank of a few feet square and of a depth of 3 feet, with a foot of good loam at the bottom and the remainder water, will suit them. *Dracænas*, *Palms*, and other ornamental-foliage plants employed in conservatories, must be returned to the stove before the foliage suffers from the cold, or they will be irreparably injured; similar remarks applying to flowering plants, such as *Dipladenias*, *Ixoras*, *Allamandas*, *Bougainvilleas*, *Clerodendron Balfourianum*, *Ste-*

phanotis, &c., being careful not to keep them too moist or too warm and close when returned to the stove, or the probability is they will be excited into fresh growth.

Ixoras that have yet flowers to open should be carefully treated, not syringing them, as their flowers will be very valuable. *Allamandas* may continue flowering for months to come without injury to the next season's bloom, but water should be given in diminished quantity so as to prevent sappy growth. Our planted-out specimens of *A. nobilis*, *A. cathartica*, and *A. Hendersoni* are never out of bloom, a portion of the plants being cut back at different periods so as to insure a continuity of bloom. *Rondeletias* will afford flowers for some time longer, and should be treated similarly.

Roman Hyacinths potted some weeks ago along with double Roman and Paper White Narcissus will have rooted and should be placed near the glass, in order to keep them as dwarf as possible, and not be brought on too quickly, a temperature of 55° to 65° being suitable.

Ferns having for the most part completed their growth will need considerably less moisture both at the roots and in the atmosphere, but should not be kept too dry or thrips will appear, and should be eradicated where they exist by moderate fumigation on two or three consecutive evenings. Plants of *Adiantum cuneatum*, &c., wanted to give fronds early for cutting, or the plants for decoration, should be somewhat dried off, and be given a rest for a few weeks in a temperature of about 50°, afterwards placing in heat and moisture to encourage growth, and when mature gradually harden them. Plants so treated are far more enduring for decoration or cutting than those taken direct from a warm moist atmosphere to a cool and dry one.

THE BEE-KEEPER.

BEE-KEEPING FOR BEGINNERS.—No. 6.

SWARMING VERSUS NON-SWARMING.

EXPERIENCE and close observation strengthen our conviction that the swarming system of managing bees is better and more profitable, healthier and more natural, than the non-swarming system. In unfavourable seasons for honey-gathering the non-system is better because less expensive than the other. This was fully stated in our last letter on this subject, in which it was said that in investigations of this kind many points should be noticed—viz., large and small hives, good and bad seasons, early and late localities, spring and autumn flowers. By noticing these points briefly we shall cross, but not cover, the whole field of inquiry before us.

1st, Large and small hives. By common consent the superiority of large hives is admitted. The most advanced bee-keepers are using them. Some ten or twelve years ago some teachers said they were a delusion and a snare. Be this as it may, large hives in good seasons yield the largest swarms, gather most honey, and give the largest returns. Smaller hives yield proportionately large first swarms, but their second swarms and turnouts are very small and comparatively worthless, and they never yield a large return in honey. In good and bad seasons, and in early and late localities, large hives are advantageous. In bad seasons small and weakly hives suffer most.

2nd, Good and bad seasons. In good seasons the swarming system of management is incomparably the best and most profitable. In such seasons we have had records of notable and remarkable success by management on the non-swarming principle, and such records we like to read and rehearse, though in most instances they are solitary. Just a few hives here and there, well managed and kept from swarming, yield to their masters extraordinary results. But the actual and almost unavoidable loss of swarms in good seasons, if managed on the non-swarming principle, is disastrous and discouraging. The stories of lost swarms from such apiaries are seldom told. In good seasons we take, and advise others to take, all the first swarms that can be had in May and June. As apiarians gain experience and better understand the natural habits or history of bees, they take broader views of swarming, and advantageously use it in various ways which they never thought about before. Hives that swarm in May are empty of brood in three weeks after swarming. Their queens have not begun to lay. By driving the bees out of them into empty hives, and putting swarms into them, the later swarms are made equal to

the earlier swarms for strength and activity. In a week, or ten days at most, they are filled with brood and ready for supering. Meanwhile the turnouts with young queens fill their hives, and, generally speaking, make excellent stocks for keeping. Thus the eggs of pregnant queens are used in hives empty of brood.

In good seasons strong hives managed on the non-swarmer system are ready for supering before supering should begin. The honey gathered from fruit trees, Sycamores, and other early-flowering plants, is too dark in colour for supering. It does not look well in any kind of supers. In early summer, too, how difficult it is to keep brood out of supers. At this season bees are bent on multiplying their numbers, and show by their conduct that "excluders" are useless, and that they can carry eggs wherever they go. They sometimes—nay, often, cut down honey-comb in supers, and empty the cells to make room for brood. By having strong hives in autumn and spring, early swarms are obtained in good seasons, many of which will be ready for supering at the proper time. In bad seasons bees themselves instinctively shrink from swarming, and, generally speaking, few colonies are sent off. To swarm bees in such seasons is undesirable; indeed, it would be about as unnatural as it is unnatural to prevent swarming in good honey seasons.

3rd, Early and late localities. In some high and cold districts there are no orchards or fruit trees, no early spring flowers. In such districts bees are late in commencing to work and breed; swarming there does not commence till June under ordinary management. In some districts there is no Heather or autumn flowers. The honey season ends with the white Clover about the end of July. In the absence of Heather, or, in other words, if bees are not taken to the moors in August, swarming should be prevented about and after the end of June. My native village in Lanarkshire is a cold late place without orchards and Heather, but the bee-keepers there remove their bees to the orchards on the Clyde in spring, and to the moors in autumn. By so acting they get early swarms and have long summers. In that cold district swarms are obtained about as early as they are in the warm districts of England. This is owing to the excellent mode of managing bees in autumn at Carlisle. The swarming principle is adopted and followed there. In autumn all the bees of the honey hives are preserved and united to the stocks, making them doubly and trebly strong. Herein we have the secret of great success, and an instance of modern bee-keeping unsurpassed for worth and excellence. If bee-keepers generally will see that their hives are made strong in autumn by additions of bees and proper protection, they will soon be proud of their apiaries.

In cold late districts we approve of covering hives well, and gentle stimulating feeding in the spring months. Attention to these points and autumn treatment, bee-keeping, even in high-lying districts, may be a source of pleasure and profit to all who resort to it.

Looking at the advantage of having hives with young sweet combs in them and young queens, and other points which cannot be had on the non-swarmer principle, we feel quite certain that the teachings of experience will lead most bee-keepers at no distant day to adopt and follow the practice now indicated—viz., of having strong hives in autumn and early swarms.—A. PETTIGREW.

BEES IN WINTER.

IN your August number, page 137, Mr. Pettigrew says:—"Owing to last winter being open and warm, bees, generally speaking, consumed most of their stores," &c. On the same page you give an extract from the *Bienenzeitung* of one of Dr. Dzierzon's articles, thus:—"The milder the winter is the more complete will be the repose of the bees . . . whilst increasing cold stimulates them to breathe more frequently and consume more food." Can these two statements be reconciled, and if not, to which should a beginner give credence? I have just read up your bee articles for the last eighteen months, so did not sooner notice the apparent difference of opinion between two acknowledged authorities.—EAST RIDING.

[Dr. Dzierzon, and most scientists, on the principle that all saccharine matter is heat-producing and stimulative, adhere to the theory that bees in cold weather both require, and actually consume, honey in larger quantities than they do in warm, in order to keep up the necessary heat of the hive. In proof of this they allege the well-known fact that two stocks of bees united in the autumn will exist and thrive upon the same quantity of food which one stock alone would have required for its sustenance. Although this subject resolves itself into a question of chemistry chiefly, it is, nevertheless, one for experiment; and we trust that some of our able contributors on bee culture will institute ex-

periments forthwith, the present time of year being especially favourable for carrying them out.]

WHAT TO PLANT FOR BEES.

MANY have applied to us to know what plants are best to put in small gardens for bees, and therefore we take this opportunity of stating what experience has taught us regarding this subject. It is a well-known fact that bees do not depend upon the comparatively few plants we can tempt them with in our gardens. Their supply of food is drawn from more extensive sources—from the forest trees, the fields of blossoming corn, Clovers, Buckwheat, Mustard, Charlock, or from acres of purple Heather. At the same time there are many plants which can be placed in a bee-keeper's garden upon which the bees delight to feed, some of which yield, comparatively speaking, great quantities of honey and pollen, and fill up intervals between the blossoming of various field crops. It is likewise always pleasant to see bees working, and to be able to walk round our garden and watch the manner in which our little favourites load their pollen baskets. There is, moreover, another reward which the bee-keeper has who plants for his bees. Many of the plants which we have proved are most acceptable to the bees are also most remunerative to the planter, and inasmuch as he who keeps bees is certain of manifold more fruit from the plants than he who has no bees, there is a double inducement to take some little trouble to give up some part of our garden space to plants specially suitable to the production of pollen or honey. There are many flowers which are most acceptable to bees, and which give pleasure to the eye only of the bee-master, such as Crocuses, Arabis, Wallflowers, &c. Of these we will in this paper say nothing, but only treat of such as shall be remunerative both ways to the bee-keeper—viz., such as will yield honey from their flowers, and be of market value as to their fruit, or of utility for kitchen purposes. In another paper we will take in their order of flowering some of the plants which are only pleasant to the eye, and from which the honey alone is the remuneration obtained.

Of the former class the Gooseberry should be placed first, as it flowers early in the year. Wherever an odd corner can be spared, or a border by the side of a walk is available, plant Gooseberry bushes. If space be limited, then train them to wire netting fastened to stakes. Many bushes can thus be planted in a small space, and the fruit from such will be fine, and easily protected, where required, from birds. We have grown splendid crops of this fruit in seasons when our neighbours have hardly had any. With every gleam of sunshine our bees revelled on the tiny blossoms and thus set the fruit, and we have always had to thin out well; never the annoyance of fruitless bushes. Strawberry blossoms are also much frequented by the bees, and where space can be allotted to them a bed is much more productive, if near hives, than at a distance from them. It is a delightful study to trace the marvellous adaptation of insects to the fertilisation of flowering plants; and the Strawberry plant, among many others, is a striking example of the dependency of flowers on insect life for their means of producing fruit in proper season. Those of our readers who would like to know more of this subject should purchase the plates published under the auspices of the British Bee-Keepers' Association, showing the anatomy of the honey bee and its relations to flowering plants. An explanatory key is published with the diagrams, and the subject under our consideration is thus explained:—

"For fertilisation insects are required, since the stigmas are ripe long before pollen is produced. Bees especially, walking over the bloom seeking honey, carry pollen to the stigmas. Where fertilisation takes place the Strawberry develops, but if it fail in part we have there a hard, shrunken, and greenish mass. Any dish of Strawberries examined will give instances. Without this fertilisation no crop appears. To produce a single perfect Strawberry from one hundred to double or treble that number of independent fertilisations must be accomplished. In the Blackberry or Raspberry every little rounded mass (drupel) has had its stigma which an insect has visited. How clear it is that our fruit crops are aided not a little by the presence of bees!"

Other fruits are produced by aid of the bees in a more or less elaborate manner, and with this slight digression from our immediate subject we will proceed to point out other profitable plants for small gardens. We do not remember seeing the Radish specially noted by any bee-keeper before, but we have found it a wonderful favourite with bees. It is our practice to leave a few roots in each Radish bed to run to seed, and those who may try this plant will be surprised at its attraction for bees, also at the enormous amount of seed that will set on each plant. Towards autumn the seed vessels if not ripe can be cut off and hung in a warm dry place, where the seed will be quickly harvested.

Another useful plant of which bees are very fond is the French Runner Haricot Bean with white blossoms. After giving employment to the bees the useful vegetables will be the more productive the oftener the weather has permitted our insect friends to visit them. The flowers of all the Cabbage and Cauliflower tribe are ever wooed by the bees; but then they occupy much space, and perhaps look somewhat untidy. Two herbs we have found ever covered with bees when in flower, and we intend to place them in every vacant nook and corner this next season. The one is the ordinary garden Thyme, a neat pretty plant, looking well as an edging to borders and flowering late in the year when most other flowers are over. The other herb is Pennyroyal, its trusses of lilac flowers at the present date being alive with all kinds of bees whenever the state of the weather permits. We have said nothing here about the various kinds of fruit trees which are found in large gardens, and all of which yield honey. Even in small gardens they can be grown as dwarf bushes or pyramids, and near bees will readily set their fruit in favourable weather. The plants we have mentioned can be grown in every garden, even near the smoke of London.—P. H. P.

BRITISH BEE-KEEPERS' ASSOCIATION.

At a recent meeting of the Committee the following report was received from the Examiners appointed to conduct an examination of candidates desirous of gaining certificates of competency in the modern system of bee management—viz.

"In presenting to the Committee of the British Bee-keepers' Association a brief report of the first examination of candidates for the certificates of competency in bee management held at South Kensington on the 7th and 8th days of August, 1882, in connection with the annual metropolitan Show, we have to state that twenty-one candidates appeared for examination, and were examined by us in the appointed subjects as laid down in the books recommended by the Committee, by written papers, *vis à voce*, lecturing, and manipulation of living bees; that twenty of the candidates were deemed by us as qualified to receive certificates, eight being placed in the first class, nine in the second class, and three in the third class, only one having failed to satisfy us.

"We could have wished that the printed questions had been more fully considered, many of the candidates having treated them in too cursory a manner. We express a hope that future candidates will bestow more care and energy upon their preparations for the delivery of lectures to audiences composed of cottagers, and to the manipulation of living bees.

"With the theory of apiculture all appeared to have a fair general knowledge and acquaintance, and as a first attempt or experiment we deem the examination to have proved eminently successful, and to have so far produced most satisfactory results.

"Herewith appending the class lists.

"We remain, Gentlemen, your faithful Servants,
 "THOS. W. COWAN, F.G.S.,
 "HENRY BLIGH, M.A.,
 "GEORGE RAYNOR, M.A., } Examiners."

CLASS I.

C. Brown, 49, High Street, Dudley.
 J. Stevens, 10, Montrie Terrace, George Lane, Essex.
 F. Cottman, 23, Western Road, Olney, Bucks.
 C. T. Overton, 7, New Street, Three Bridges, Sussex.
 G. Stothard, Welwyn, Herts.
 G. H. Baines, 33, Western Road, Tring.
 Rev. E. Davenport, The Manse, Hungerford.
 I. Lake, Cantley School, Doncaster.

CLASS 2.

G. St. John, Holly Cottage, Quinten, Birmingham.
 J. Arnold, School House, East Molesey, Surrey.
 J. Best, Witham Apiary, Boston.
 R. H. Stonhill, Stekeley, Leighton Buzzard.
 R. W. Davies, Manor Street, Braintree.
 A. W. Rollins, Stourbridge, Worcestershire.
 R. J. Tomlin, 2, Albion Villas, Park Grove, Leytonstone.
 J. Taylor, Cooper's Green, Buxted, Sussex.
 T. C. Edmonds, Caistor, next Yarmouth.

CLASS 3.

J. Alsford, Market Place, Blandford, Dorset.
 N. Atkin, The Grange, Welwyn, Herts.
 J. Perry, Banbury, Oxford.

The next quarterly meeting of the Committee and conversazione will be held at 105, Jermyn Street, on October 18th, when a paper will be read by Mr. G. D. Haviland on the "Social Instincts of Bees, their Origin by Natural Selection."

TRADE CATALOGUES RECEIVED.

William Paul & Son, Waltham Cross, Herts.—*Catalogue of Roses, Fruit Trees, and Miscellaneous Plants.*

James Gray, Danvers Street and King's Road, Chelsea, London. S.W.—*Illustrated Catalogue of Horticultural Buildings.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Late Nectarine (J. E. R.).—You cannot add a better variety for continuing the supply to those you have named than the Victoria. It is large and of excellent flavour, while the tree grows well and bears freely.

Vines at Longleat (F. J.).—Mr. Taylor's manual will be ready in a few days. The price will, we believe, be 1s. exclusive of postage. Full particulars, however, will probably be announced next week.

Golden Feather for Spring (A. Boyle).—Certainly if you had stated your requirements we should have advised earlier sowing. Your letter implied you desired the plants for summer, not for spring bedding. Procure the larger plants to which you refer, they will answer your purpose, while some of the smaller will probably also be useful.

The Cucumber Disease (J. Penton).—You do not appear to read the Journal attentively, or you would have found much matter from time to time on this subject. On page 284 of our last issue you will find a reply to a correspondent that is equally applicable to your case, and to that paragraph we direct your attention. Melons are much less liable to be attacked by this malady, but they are not invulnerable.

Ampelopsis Veitchii (A. M. B.).—Yes, we endorse what Mr. Luckhurst said on page 242 relative to this most useful climber. For summer and autumn effect you cannot plant anything better and needing so little attention; in fact if you plant it in good soil near a building it will take care of itself. It is perfectly distinct and greatly superior for forming a close surface to the old Virginian Creeper. We doubt the advisability of your planting other climbers with it, though we have seen a pretty effect produced by adding Clematis Jackmanni. This, however, must be secured to the wall and trellised; so also must the Jasmine which you name, but the Ampelopsis adheres with tenacity to almost everything with which it comes in contact; we have seen it adhering to glass. Thanks for your letter, and we shall be glad to hear from you at your convenience.

Roses for Buttonholes (F. J.).—Tea Roses are among the most suitable for this purpose, and there are few gardens where the soil is good and the atmosphere pure in which they, with a little protection, may not be grown. Free and good are Niphetos, Madame Falcot, Homère, Madame Van Houtte, Madame Lambard, Safrano, Perle des Jardins, Comtesse Riza du Parc, Madame Jules Margottin, and Souvenir de Paul Neyron. The old crimson China Rose and Cramoisi Supérieure are good for your purpose, as also are the Noisettes Triomphe de Rennes and Aimée Vibert, with Baronne de Maynard, Boule de Neige, and Louise Darzens. Moss Roses are indispensable—the common, crested, Moss de Meaux and Little Gem (W. Paul), the latter being very charming. Among the most free and suitable of the Hybrid Perpetuals are Jules Margottin, Général Jacquemiot, and La France. We have probably named sufficient for your purpose. The advisability of digging-up and planting your established Roses deeper depends on the depth at which they are planted now. If they grow and flower freely we should let them alone; if not, you might try the plan you suggest, but on this point we cannot advise, since you have not stated the length of the stocks.

Muscadine Vines Unsatisfactory (Idem).—The foliage indicates that the roots are in ungenial soil. No doubt the Vine would be benefited if the roots, or some of them, were raised and placed in good turfy loam, covering them 4 or 5 inches deep, and keeping them regularly moist. Thus treated, fresh fibres would form, which would appropriate the food within their reach and invigorate the Vine.

Lime for Light Soil and Vine Border (Inquirer).—Half a bushel is a sufficient quantity to apply per rod (30½ square yards), and unless the soil be rich—full of humus from heavy dressings of vegetable and animal manures, such as are essential to the production of high-class vegetables—a peck per rod is a sufficient quantity to apply at one time, which we do about every third year; but as your soil has not been limed for ten years the larger quantity may be applied. It should be put on "quick," and during dry weather in autumn or spring, preferably the latter. For a Vine border half a bushel per rod is a sufficient and suitable quantity, but with the soil very rich from surface dressings double the quantity may be applied. In every instance it should be equally distributed and pointed in with a fork.

Earth-closet Manure (Idem).—The manure when stored must be kept dry, as the ammonia, &c., would be liberated by moisture. Charred or burnt garden refuse, including soil, will be suitable for using instead of earth, and the more valuable from the increased quantity of potash contained in the manure.

Strawberry for Light Soil—Raspberry for General Use (Idem).—President is unquestionably the best Strawberry for a light soil, giving an abundance of large highly flavoured fruit. Of Raspberries Baumforth's Seedling is very free and fine, and when more generally known must become a great favourite. Of established varieties Carter's Prolific is very good, and so are the Prince of Wales and Fastolf. The first of the three last named is grown by the acre in Kent, and gives great satisfaction.

Insects on Pansies and Ferns (An Old Subscriber).—These are specimens of a common Myriapod, the Julus terrestris, in a young or immature stage. Both are identical, and the difference in colour arises from the fact that those

of the species living above ground become darker by exposure to the air and light. Although occasionally injurious, as described by you, it is also a destroyer of other insects. It might be killed by an application of the compound of paraffin, soft soap, and water, the proportions of which have been repeatedly given in these pages. Or many of them might be snared by strewing in the earth small pieces of apple or pear, of which they are very fond.

Treatment of Belle de Chatenay and Queen of Violets (C. R. W.).—Mr. G. Abbey writes as follows in reply to your query:—"These, when the blooms can be had fully developed, are perfect rosettes, Belle de Chatenay being purest in colour. Sometimes, as you observe, they bloom splendidly, and at others it is only by chance we get a good bloom, the rest being quite undeveloped and scarcely possessing a petal. This tendency results from the plants flowering too profusely, more buds being produced than the plant can develop. It is the same under whatever condition the plants are grown—in pots with the flowering accelerated by warmth, in frames, or outdoors. Even now the plants have a great number of deformed buds, being devoid of petals, and cannot under any possibility be developed into well-formed full flowers. The only remedy that I know is to examine the plants frequently, and remove all the flower buds that do not appear to be perfect. The removal of these will mostly result in the best-formed buds developing satisfactorily. It is the first buds that show the tendency to petal-defect. Such are marked by short footstalks, and are common to all double Violets in the first or early buds."

Fruit for August and September (Constant Reader).—If you have a warm position out of doors we should not plant Apricots in the house, but should add the Moorpark to those you name and plant against a wall with south aspect in the open air. Some of the best Plums for exhibition are Goliath, also called Emperor, end of August; Pond's Seedling, end of September; Kirke's, middle of September; Jefferson, middle of September; Transparent Gage, beginning of September; Huling's Superb, end of August; Denniston's Superb, middle of August; and Washington, middle of September. The exact period of ripening depends on seasons and districts; we have given the usual times of ripening in the open air near London. It is for you to determine in accordance with the climatic character of your district whether you plant any of the trees under glass or not. You may graft the Black Hamburgh, Alicante, Gros Colman, or Madresfield Court on the Lady Downe's stock provided it is healthy.

Arums (Lorimore).—None of these plants is difficult to grow, and the three following are quite hardy, and would be the best suited for your garden. Ordinary garden soil is all that is needed, but a little manure applied in spring will render their growth much stronger and the spathe larger. A dry position is the least fitted for them, and in any situation they require abundance of water during the summer. They can by no means be considered as strictly handsome, but they are curious, and possess a certain degree of attraction,



Fig. 49.—Arum crinitum.



Fig. 50.—Arum italicum.

chiefly owing to the peculiarity of their forms, for their odours are far from agreeable. *A. crinitum* (fig. 49) is of very singular appearance, the spathe being broad and shovel-like in form, the upper surface being dotted with bluish purple airs. *A. italicum* (fig. 50) is more in the way of our common *A. maculatum* as regards the shape of the leaves and spathe, also in its habit, but the spathe is yellowish and contrast strikingly with the rich green foliage. *A. Dracunculns* (fig. 51 page 307) is one of the largest-growing sorts, and forms a prominent object in a mixed border, the foliage being handsome. The spathe is long and tapering, of a blackish-purple colour, and for a short time after they have expanded they exhale a most fetid odour, but that soon passes off.

Raspberries for Autumn Bearing (Anon).—October Red is the best, withstanding wet better than most others, Large Monthly being dwarf-growing and an abundant bearer, but the fruit is not so large as October Red or Belle de Fontenay. Orange d'Automne is very large, yellow or orange, and good in flavour; but October Yellow, though less in size of fruit, is more prolific. By double bearing we presume is meant the fruit borne sometimes on the canes of the current year's growth, which is usually most common when the season is moist and the canes make vigorous growth. These have been scarce with us this season, but have been usually sufficient to give a supply as an accompaniment for Red Currants in tarts and dessert until the autumn-bearing sorts continued the supply until the approach of winter.

Roses for Greenhouse (Harborne).—Your request implies that you need Roses for training up the roof, but you do not say so. For this purpose we doubt if any will give greater satisfaction than Maréchal Niel and Gloire de Dijon; the best red variety for the same purpose is probably Reine Marie Henriette. As a rule they are far better planted in good soil than kept in pots. Two good Roses for growing in pots for forming bushes are La France and Niphetos, of which strong plants well cultivated give a wonderful quantity of acceptable flowers.

Second Crop Figs—Paulownia imperialis (Ramallo).—It is not possible for you to preserve the Figs, which are now larger than Filberts, on a tree in the open air so that they will ripen next year. They will all shrivel and drop off whatever you may do to secure them. Nor is it practicable to protect the flower spikes of this tree so that the blooms will expand at this late season of the year. The nights are too cold for that to be accomplished, and such buds as you have sent will shortly fall. We are not able to state definitely the cause of the brown patches on the leaves. If you have not had a shower of hail in

your district they have probably been caused by the puncture of an insect. The red Apple you have sent is Fearn's Pippin, the other Keddestone Pippin.

Melons Failing (J. E.).—Even if you had supplied us with some particulars relative to the treatment your plants have received and the weight of the crop, we suspect it would have been difficult for us to state the cause of the evil; without some such information it is impossible. The fact that your plants have produced a second crop suggests that they are more or less exhausted; this, with possibly some little inattention in watering and ventilating, would cause the foliage to collapse and the stems to shrink as in the specimens before us. Withholding water when the fruit is approaching maturity is often carried to excess, and many crops are thereby impaired if not ruined. Whether this is the cause of your failure we are unable to say, being quite without data for determining the point, or, in fact, for comprehending the case in a satisfactory manner.

Grapes not Colouring (Idem).—The chief cause of Grapes failing to colour is undoubtedly defective root-action or insufficient support; injury to the foliage, either by insects or scorching, also contributes to the evil. You do not think the Vines have been overcropped because one of them is not bearing more than 8 lbs. of Grapes, but you omit to state either the age or size of the Vine, which information, as you must perceive on reflection, is absolutely necessary for us to form an opinion on that point. We have seen hundreds of Vines overcropped with 8 lbs. of Grapes on each, and hundreds more undercropped with thrice that weight of fruit. Everything depends on the constitution of the Vine, the activity of the roots, and the fertility of the border. We strongly suspect that, although the crop may appear light, it is really too heavy, and that more vigorous root-action with fresh soil are needed to bring the Vine into a healthy condition that will enable it to finish the crop. This opinion is founded on the assumption that the foliage of the Vine is clean, not overcrowded, and apparently healthy. If we were acquainted with the actual condition of the Vines and border and the leading points of your treatment, we should have no difficulty in answering your letter, but with a lack of knowledge on these points we cannot reply satisfactorily to ourselves.

Traders versus Amateurs Exhibiting (R. B. Barratt).—The schedule with rules to which you refer has not reached us, and consequently we are placed at some disadvantage in answering your letter. We, however, have no difficulty in stating that the individual in question is not a nurseryman, neither is he an amateur according to the ordinary meaning and acceptance of that term. He is a trader, and as such not eligible for competing in amateurs' classes. An amateur is, briefly, a person who grows his own produce for his own use. If growing it for sale is his chief object, he is, as we have stated, a professional trader. If there is nothing special in your rules on the subject admitting such an exhibitor in the amateurs' classes, the protest to which you allude is well founded and is worthy of consideration.

Repotting Pines (J. C.).—The plants having been transferred to the 9-inch pots in May will not now require repotting, as the shift then given them ought to be the fruiting one. To repot now would defer the fruiting for some time, but, well attended to, the plants should throw fruit early next year and ripen in early summer. Instead of shifting now apply weak guano water in a tepid state, but it should never be given until the plants need it, and then a thorough supply. When the roots of Pine plants have fairly hold of the soil after repotting weak liquid manure may be given each time water is required until the fruit is near the colouring stage; not afterwards.

Vines in Pots (Idem).—The Vines no thicker than a lead pencil will be of no use for fruiting next season. They should be as thick as the middle finger or thumb, and have hard, brown, well-ripened canes, with eyes like nuts, and be in 12 or 13-inch pots. The Vines should be cut down to a couple of eyes, and when they have produced a few inches of growth next season shake out and repot into 7 or 8-inch pots, and when these are filled with roots, and before they become matted around the sides, shift into the fruiting pots.

Budding Cherries on Mahaleb Stock—Madresfield Court Grape Cracking (Idem).—The early part of July is a proper time to bud this stock as well as the common Cherry stock. The most probable cause of the Grapes "splitting" is an insufficiency of nutriment during the early stages of swelling and an over-abundance when the Grapes are approaching the ripening stage, along with a moist atmosphere. This Grape is liable to crack, and requires a rather dry well-ventilated atmosphere, with a drier condition at the roots when ripening than most other Grapes. Well grown it is one of the finest of autumn Grapes both in appearance and quality.

Alternanthera Cuttings (Miss A. Peel).—We are not able to state where you can purchase cuttings, it being quite contrary to our custom to recommend dealers, as you will perceive if we were to recommend one we should be acting unfairly to others of equal repute. Plants can be obtained from most of the nurserymen who advertise in our columns. A few plants obtained now and kept in a stove through the winter would afford hundreds of cuttings for striking in the spring and planting out in early summer. They cannot be wintered in a cool greenhouse, nor will they grow and colour satisfactorily in districts where the summers are cold and wet.

Turf Litter (C. D.).—No one could have supposed that the above term applied to such matter as you have sent us. In the great mass of correspondence that passes through our hands it is impossible for us to remember the contents of letters sent a month ago, and you ought to have re-stated your request. We can only say that the "litter" you have sent possesses little or no manurial value, and can only be of use for mixing with very strong soil to improve it mechanically for certain kinds of plants for which it may be unsuitable in its original state. We will readily answer any questions you may submit if we can understand them, but you are one of those correspondents who, with the best possible intentions of affording us the least trouble in reading long letters, err on the other side, and afford us no data for replying satisfactorily. Write more fully, explaining clearly the nature and condition of anything on which you need information, and your letters shall at all times have our best attention.

Plants for Cold Greenhouse (J. Martin).—To furnish an unheated house well of the dimensions of yours would cost nearly as much as heating it with hot water, and quite as much as by a flue of sanitary pipes. For rendering such a structure ornamental in the winter you would have to rely mainly on choice evergreens and fruit-bearing shrubs. Amongst the former small variegated Hollies, Enonymuses, and Ivies; and the latter Skimmia japonica, Perpetua marginata, and Aucubas. Small Rhododendrons would be refreshing in winter and gay in spring. Some of the Veronicas, such as V. Andersoni variegata and Blue Gem, might be suitable, also Christmas Roses, such as Helleborus niger and the fine variety maximus, H. olympicus, and H. purpurascens. For

early spring all bulbs that are grown in gardens would be useful, such as Hyacinths, Tulips, Scillas, and Crocuses, with Hepaticas and Winter Aconite (*Eranthis hyemalis*).

Preserving Scarlet Runners (*Idem*).—They may be preserved by being placed in layers in large stone jars alternately with layers of dry salt. First cover the bottom with salt; then place in the pods, which must not be wet, about an inch thick, which just cover with salt, and continue the process until the jar is filled, finishing with a thick covering of salt. The beans when taken out should be soaked for several hours before being cooked. We have had beans thus preserved that were fresh, green, and of good flavour throughout the winter. If any of our readers know of a better plan for preserving the pods we will readily publish it.

Tomatoes Diseased (*Witherby*).—The disease which has attacked your plants is similar to the Potato disease. It has been extremely violent in some districts, and quite ruined the plants and crops. It is much worse in wet than in dry positions, and does not commonly affect plants under glass. There is no remedy, but the evil may be evaded by affording the plants the shelter of walls or glass.



Fig. 51.—*Arum Dracunculoides*.

Gordius aquaticus (*G. U.*).—The above is the name of the singular creature which children call horsehair worms, and we suppose many thousands of horse hairs have been placed in water by them under the erroneous notion that they be converted into the worms; hence the common name that is applied to them. They are found in many parts of Great Britain, but whether "all over" it or not we are unable to say. Their distribution, however, is general, not partial merely.

Zonal Pelargoniums (*J. H.*).—We perceive you are on the way to success, and you will in a short time achieve your object. Your plants from spring-struck cuttings are of full average quality, and next season you will probably have plants and trusses extra fine. Young plants raised from strong well-ripened cuttings, healthy root-action always, rich soil, and full exposure to the light and air, are the

chief essentials for producing large trusses. If you add to the loam a fifteenth part of bonemeal, and give liquid manure occasionally when the pots in which the plants are to flower become filled with roots, you will have strong growths and thick dark green foliage, and these being secured large trusses are inevitable. There must be no check to growth at any time, either by permitting the plants to become root-bound before being shifted, or inattention in watering at any time. Your varieties are good, and the following, selected from Mr. Canuell's collection, may be grown with confidence. They produce at Swanley enormous trusses, quite twice the size of those to which you refer. This, however, is doubtless in a great measure due to superior cultivation, and are top-dressed frequently with the "Invigorator" that is used in the nursery. Newer varieties.—*Crimsons*—Metis, Mrs. Gordon. *Rosy Crimson*—Celia, Hermia. *Scarlet*—Future Fame, General Graut, Manfred. *Magenta*—La France, Eva, Hebe. *Salmon*—Cercs and Mrs. J. Gibson, Madame Colson. *Purple Pinks*—Eurydice, Mrs. Strutt, Jean III. *Rosy Pinks*—Constance, E. V. Sembray, Paul Baur, Lady Bailey. *Whites*—White Clipper Improved, Eureka, and Prima Donna. *White, Pink Eye*—Mrs. Moore.

Names of Fruits (*R. Warner*).—Jefferson Plum. (*P. J.*).—1, rotten; 2, La Jive; 3, Fondante d'Automne; 4, Nouveau Poiteau; 5, Beurre Ranco; 6, Probably Beurre Clairgeau from a late blossom, not Emile d'Heyst. (*C. J.*).—1, 2, and 12, Beurre d'Amanlis; 3, Dunmore; 6, Urbaniste; 8, Elton; 10, Beurre de Capiaumont; 11, Catillae. We cannot name more than six specimens. (*W. H. Ashwin*).—The Apple is Lady Henniker. Pear is not known to us, and it is worthless. (*Erdington*).—Kerry Pippin. (*H. P.*).—1, Not known, probably local; 2, Beadnell's seedling Plum Isabella. (*Captain H.*).—Pears.—6, Pitmaston Duchess; 8, Williams' Bon Chrétien; 9, Marie Louise d'Uccle. *Apples*.—10, Winter Hawthornden; 11, Court Pendu Plat; 12, Reinette de Canada.

Names of Plants (*T. F. L.*).—1, Ajuga reptans; 2, Saxifraga aizoon; 3, Sedum hispanicum glaucum; 4, Sedum acre; 5, Lysimachia nummularia aurea; 6, Antennaria tomentosa. (*G. P.*).—1, Streptocarpus floribundus; 2, Much shrivelled, but apparently a form of Pteris tremula; 3, Swaiusonia galiegifolia alba; 4, Pellaea rotundifolia; 5, Begonia ania. (*H. Osman*).—The specimen with yellow flowers is Hypericum Androsæum, the other is Pittosporum Tobira. (*W. C. S.*).—Caleceolaria glutinosa. (*Inquirer*).—1, Unrecognisable; 2, Maxillaria squalens; 3, Adiantum tenerum scutum; 4, Gymnogramma chrysophylla; 5, Selaginella Wallichii; 6, Croton undulatus. (*H. B.*).—1, Pteris cretica; 2, Pteris serrulata; 3, Habrothamnus fascicularis; 4, Cestrum aurantiacum; 5, Epidendrum vitellinum. (*W. R. S.*).—1, Maranta zebrina; 2, Maranta arundinacea; 3, Tradescantia discolor; 4, Tradescantia zebrina. (*N. O.*).—1, Cosmos bipinnatus; 2, Bidens tripartitus; 3, Bidens pilosus; 4, Dahlia glabrata; 5, Cosmos diversifolius atrosanguineus.

COVENT GARDEN MARKET.—SEPTEMBER 27TH.

TRADE very quiet, with prices unaltered. A better demand for Peaches, which are firm. Kent Cobs easier.

VEGETABLES.											
		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	to 4	0	Lettucees	score	1	0	to 1	6
Asparagus.....	bundle	0	0	0	0	Mushrooms	punnet	1	0	1	6
Beans, Kidney	100	1	0	0	0	Mustard & Cress ..	punnet	0	2	0	3
Beet, Red.....	dozen	1	0	2	0	Onions.....	bch.	0	6	0	0
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	3	0	4	0
Brussels Sprouts..	1 sieve	2	6	3	0	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Peas	quart	0	10	0	0
Capsicums.....	100	1	6	2	0	Potatoes.....	ewt.	6	0	7	0
Carrots.....	bunch	0	4	0	0	Kidney.....	ewt.	6	0	8	0
Cauliflowers.....	dozen	2	0	3	0	Radishes....	doz. bunches	1	0	0	6
Celery.....	bundle	1	6	2	0	Rhubarb.....	bundle	0	4	0	6
Coleworts.....	doz. bunches	2	0	4	0	Salsafy.....	bundle	1	0	0	0
Cneumbers.....	each	0	4	0	6	Seorzonera	bundle	1	6	0	0
Endive.....	dozen	1	0	2	0	Seakale.....	basket	0	0	0	0
Fennel.....	bunch	0	3	0	0	Shallots	lb.	0	3	0	4
Garlic.....	lb.	0	6	0	0	Spinach.....	bushel	3	0	0	0
Herbs.....	bunch	0	2	0	0	Tomatoes.....	lb.	0	2	0	7
Leeks.....	bunch	0	3	0	4	Turnips.....	bunch	0	6	0	0

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples.....	1 sieve	2	0 to 7	0	Lemons.....	case 20	0 to 30
Apricots.....	doz.	1	0	1	6	Melons.....	each 2
Cherries.....	1 sieve	0	0	0	0	Nectarines....	dozen 2
Chestnuts.....	bushel	0	0	0	0	Oranges.....	100 6
Currants, Black..	1 sieve	0	0	0	0	Peaches.....	dozen 2
Red.....	1 sieve	0	0	0	0	Pears, kitchen ..	dozen 0
Figs.....	dozen	0	6	1	0	dessert.....	dozen 1
Filberts.....	lb.	0	6	0	0	Pine Apples, English	lb. 3
Cobs.....	100 lb.	50	0	0	0	Raspberries.....	lb. 0
Gooseberries....	1 sieve	0	0	0	0	Strawberries....	lb. 0
Grapes.....	lb.	1	0	3	0		



POULTRY AND PIGEON CHRONICLE.

THE INFLUENCE OF CLIMATE ON CULTIVATION.

(Continued from page 285.)

WE must now point out somewhat more in detail the climatic elements which should decide the special advantages of each system of cultivation; but this can only be done beneficially by bringing into contrast the requirements of the various crops, and with particular regard to cultivation and manuring under the varied conditions of climate. One of the most peculiar and clearly defined variations in the cultivation of cereal crops in moist and wet climates is strongly indicated by the position which the growth of Wheat occupies in the rotation. In moist climates it is found to thrive best after a bare fallow or fallow crops, such as Vetches, Trifolium, and Mustard, or early root crops fed off by sheep; whereas in dry climates it succeeds best after Clover lea if properly manured and seeded. Nearly all over Scotland, Ireland, and the western districts of England Wheat is a rather uncertain crop when seeded after Clover, and in consequence Oats of the best white and early varieties are usually grown in lieu of Wheat, especially in the higher and more exposed situations, where the latter is found not to ripen at all. Although it may be difficult to account for this well-known fact, yet there are two principal causes in operation, for in the moister climates the straw of Wheat, except in the valleys and more favoured aspects, hardly ever assumes a clear and bright healthy colour when sown after Clover lea. The action of decaying vegetable substances like Clover roots has no doubt the effect of producing luxuriance to a certain extent in the plant, which is not counteracted by the superior effect of direct sunshine which prevails in drier climates. The surface of the straw is, therefore, subject to mildew, which often extends to the ear and reduces the yield of grain both in quantity and quality. In such climates as we have referred to conditions are less favourable, but the growth of the Wheat plant is greatly promoted in its early spring growth when the land had been fallowed before seeding. It must be admitted that land which has had the benefit of cultivation, which is insured by the growth of root crops, is generally in a much better state for allowing the young plants to root freely through the soil and gather food to a greater extent than when grown after Clover lea, and this will be seen especially when Wheat is sown after green crops.

There is a further advantage resulting from the fallow or fallow crops upon strong soils, for we are assured by the experiments of Sir J. B. Lawes, who is the greatest authority we recognise in such matters, that some considerable amount of ammonia is deposited in the land by the rainfall, especially in the summer months. Besides this, it is confidently stated that the soil condenses an unknown quantity of ammonia, which is afterwards converted into nitric acid, and that also a certain additional amount is liberated from the soil during cultivation. This scientific view of the benefit

derived from fallowing on heavy land clearly corroborates all that the practical farmer has ever claimed as the advantage to be obtained by the fallowing or the growth of green crops, irrespective of the cleansing and attrition of the soil under preparation for autumn seeding.

We find another strong reason for Wheat not answering so well after Clover lea in moist climates, which is the greater vigour of the grasses which may have been turned under in ploughing the lea. These are more difficult to overcome, and any couch which may be found remaining in the soil is not kept in check by the Wheat plant either in spring or early summer. These grasses in consequence grow up amongst the Wheat crop, and the land is left in a more foul and impoverished condition. We must, however, here remark that, as a matter of farming under such climatic conditions, the home farmer is not justified in either sowing his Wheat broadcast or in drilling it with narrow intervals, and the only way under the circumstances above related that he can ever be master of his position will be by drilling or press-drilling the seed at from 10 to 12 inches between the rows of corn, in order that room may be afforded for horse and hand-hoeing.

Let us now consider the alternative, for when Oats follow the grass crop the result is very different, especially if the seed is sown over the land broadcast or drilled at close intervals, because a liberal allowance of seed goes far to insure a thickly planted crop, and this having the start of the grasses or weeds smothers them, or at any rate prevents their injuring the cereal crop. Upon this subject it is stated on the farming of Somersetshire in Mr. Ackland's report in the Journal of the Royal Agricultural Society, that after grass ploughed down Oats are taken "to clean the land," as the farmers say, and permit its being sown with Wheat the following year. In contrast to the foregoing observations we find Mr. Hannam states most decidedly the advantages of vegetable decaying substances as manure for the cereals in all dry climates, for he says, as stated in Morton's "Cyclopædia of Agriculture," that—"It is only after a good crop of depastured seeds that a full crop of Wheat can be grown upon the high and dry wolds and the limestone and chalk hills that have been brought into cultivation in this country and in the south-east of England." Now this decaying of vegetable matter appears to improve the soil, not only by its attraction for moisture, but it also to a certain extent regulates the supply of ammonia to plants by only slowly yielding it—a matter of immense economy in the feeding of plants.

Mr. C. S. Read, in his writings upon the farming of the county of Norfolk, with his great practical knowledge and experience, remarks:—Holkham is not the natural soil for Wheat. In those wet seasons, when there was so poor a Wheat crop throughout the kingdom, the nitrate of soda here produced the greatest results." With regard to spring sowing of Wheat this is entirely a matter of climate, where soil and cultivation are equal, for in the western counties, Wales, and Scotland, the climate is quite favourable to the growth of spring-sown Wheat. The less forcing temperature by day, and greater humidity, prolongs the growth of the plant, and develops it more grossly, and with a broader blade so as to produce much heavier crops with the same amount of manure. Light soils also in the west of England sustain its growth in a most remarkable manner, and in consequence it almost resembles Barley in its quickness of growth; and when contrasted with Barley the comparison is favourable to the growth of Wheat, for it is not so liable to fall or lodge with rains as Barley.

In a general report of the Agricultural Society of Scotland by Sir John Sinclair, which aptly illustrates the effect of the Scottish climate, it states that during a series of years the Wheat crop brought in the largest money return, as compared with Barley and Oats, to the Scottish farmer, but more particularly in the Lothians and certain eastern districts; and we can say that practically the same returns hold good comparatively now as was true of them many years ago, for it is founded upon climatic influence, which is the same as ever, although it may change from year to year, for it is still found that Wheat is not grown above a certain altitude in the highland districts. The period of sowing Barley seems very wisely to be regulated by the influence of climate. A most important point here arises—viz., the seedtime for Barley; for it is found in the eastern and southern counties that it succeeds best when sown as soon as the land can be got into working condition, whether it happens in February or March; whereas Mr. Read, in his "Report of the Agriculture of South Wales" states, that "The season for putting in Barley is generally from the first week in April to the middle of May." Although it is necessary to sow Barley early in any districts where the soil is dry and the climate forcing, but in the late districts where the rainfall is greatest, although Oats succeed best, yet on the kindest soils Barley may be sown. It is, however, considered the best

practice to sow in April and May; but it is usually sown after the Wheat crop, the rotation being—1st, Turnips; 2nd, Wheat; 3rd, Clover; 4th, Wheat; 5th, Barley.

We find it pointed out by nearly all writers upon the agriculture of Wales, the western counties of England, and moist climates of Scotland, that Barley, like most other cereals, the later it is sown in spring the less manure it requires to produce a given quantity of grain. Where the custom of late sowing prevails, and it is the practice to take repeated crops of grain, it is invariably resorted to as a means of augmenting the produce. The influence of climate on the productiveness of the Oat crop is well known; it will not, therefore, be necessary for us to dwell long upon the matter. It is, however, a plant that requires a larger amount of moisture than any other cereal, but especially of Barley or Wheat; these both become plumper and thinner in the skin when the temperature is moderately high during the ripening season: on the other hand, Oats lose their plumpness under a high temperature, for they often become thin and light in weight. Hence the success of Oat culture in the highlands of Scotland, where they are grown successfully upon soils at altitudes which preclude the growth of Wheat entirely, and Barley also. We may, however, here notice that both white and black sorts of winter Barley—a Russian produce originally, and called Berc and Bigg—may be sown with success in our northern latitudes and moister climates; and we can recommend the experiment of their growth as against that of Oats. We must now conclude for the present, but we have much to say and many points to illustrate as regards the influence of climate upon the pulse crops, root crops, &c., which we hope to do on a future occasion, as other subjects now demand our attention.

WORK ON THE HOME FARM.

Horse Labour.—The harvest has now, even in the late north-western districts, been nearly finished, except in the highlands of Scotland, where the Oat crop is grown on high mountain sides in preference to other cereals; and fortunately the weather has lately proved favourable, so that but little delay has occurred in the late districts, being a great contrast when we think of the delay and difficulty of harvesting the crops of last year. Although the harvest in the earliest counties has not been exceptionally forward, still, the weather having set in fine at and after its conclusion, has proved favourable to the cultivation of those fields intended for roots, Potatoes, Mangold, and Swedes next spring. By the use of steam during the past month—that is, by cultivating a fair depth longways and crossways, and followed by horse labour, using Howard's self-lifting harrow, removing any couch, weeds, or rubbish, will have completed the surface fallow, so that after the Wheat seedtime is over the land may be deeply ploughed and allowed to lie thus during the winter. Instead of ploughing again in the spring, the bunches of grass and couch, if any, may be removed by the women with forks, which will be money well expended, because it will save the great expense of horse labour otherwise often necessary to complete the fallow in the spring. By this time all the seeding has been done for Trifolium, Rye, and Vetches, and the next work will be seeding of winter Beans and winter Barley, so that all these crops may be sown in good season before the seeding for Wheat commences, and especially is this desirable upon anything like strong flat-lying soils. Preparation, however, should now be made for seeding the Wheat land, particularly where it comes in after fallow or roots or green crops, such as Vetches fed off, Mustard ploughed in, otherwise after the autumn rains set in it is difficult to obtain a good seed bed for Wheat on such land until the spring, when it must be sown with Oats or Barley, for cold heavy land does not answer for spring Wheat in the majority of seasons. The Clover and grass leas may be left until all the before-named crops are seeded, and also all autumn fallows are completed, which, if it cannot be done by horse labour only, should be done by the hiring of steam power.

The next work will be laying out and spreading the dung upon Clover leas, and spreading as fast as laid out, especially upon dry kind soils on the vale farms, because the seedtime may be delayed for Wheat out of lea until the last week of October and the first week in November. But on the hill farms of light soils and cold aspects the Wheat should be got in the first week of October, or earlier if the land is strong soil, such as clay upon chalk and strong red soils in red sandstone districts.

Hand Labour.—Trenching in the water meadows should be continued until completed in readiness for the reception of flood water arising from the first heavy volume of autumn rain. Filling and spreading manure from the farmyard or heaps will now employ some labour. The roots of certain kinds are very foul with weeds and should be hoed, or the weeds hand-pulled in order to prevent their seeding, remembering that "One year's seeding means seven years' weeding." The hedging and cleansing of the dykes should now be done, especially on those farms where much under-draining has been effected, so that as soon as these begin to discharge freely there may be no accumulations or stoppages at the outlets of the main drains.

Live Stock.—In speaking of sheep stock for this period we must refer first to the horned Dorset and Somerset stock; these, as well

as other breeds of sheep, are very high in price, and are likely to continue so unless we should be surprised by an early winter. The horned ewes are now especially dear to purchase in lamb, showing how favourable the season has been and how beneficial it will prove to those farmers who have held over a portion of the ewes by taking a second crop of lambs from them. We must here notice the practice in this respect. The plan of doing this in the south, south-eastern, and home counties is by some of the most experienced farmers who usually supply early lambs to the metropolitan market in the winter and early spring. It has now for many years, since the forward ewes have been so much in request, been the practice to hold over one-half or a third portion of the ewes bought in, and which will now begin lambing in the course of a week or ten days, and breed from them again, and they are selected in the following manner:—All the earliest lambing ewes being put to high feeding and sold with their lambs fat in the winter and spring. Those ewes which lamb late, say after the 20th of November, are kept in good stock condition, and mated with the ram the following month of May. There are several advantages in this system. The ewes—speaking of Dorset and Somerset stock—that do not lamb early, and not until after the period named in November, do not pay for high feeding, but it is found by experience that the ewes which lamb early will always get fat, if well fed, whilst suckling their lambs, but those which lamb late will not, as a rule, prove fat and fit for sale when their lambs are sold, although the food they may have consumed may have been of the same kind, quantity, and quality, and during the same number of weeks as the early lambing ewes. It is, therefore, not deemed profitable or desirable to feed the late ewes with cake or corn or any other costly food, but to keep them only in such a state as will enable them to furnish a good supply of milk for their lambs, which is done by feeding with first-rate hay and roots only. In the spring, afterwards and during the summer, the ewes are kept in fair stock condition, turning the ram with them first week in May, and removing it away from the ewes the end of June. This will give all the lambs for the season by the 20th of November; any ewes not proving in lamb to be sold fat as soon after as possible. The new ewes purchased, which lamb at the same time, are fed and kept with the old stock which lamb early, but it will be found that the latter will generally make lambs of the choicest quality, and better than those derived from the new stock, although they may fall at the same date. The Hampshire and cross-bred lambs intended for early slaughter should now be well fed on cut roots, cake, and bean or barley meal. The young cattle intended to be killed as baby beef should now be forced on by liberal feeding in the boxes, both by roots such as Cabbage or Carrots and early Turnips, with 4 lbs. of cake and 2 lbs. of beanmeal per day, but without bay, for if plenty of sweet straw is available they will thrive well. It is not much even of the best grazing districts which will maintain the fattening bullocks in full condition unless cake is given freely, but if fat the sooner they are sold the better, as good beef has lately been selling at a high figure. If intended for Christmas beef they should be put into the boxes immediately.

THE HOP CROP.—Messrs. W. H. & H. Le May's annual report on the state of the Hop crops of the world states that after a careful and thorough examination of the Hop gardens of England they are of an opinion that this will be the shortest crop per acre ever known, and will not produce more than £32,000 old duty, or an average of 1 cwt. per acre. They have calculated that there are at least 30,000 acres that will not produce any Hops; 20,000 that will not exceed 1 cwt. to the acre; 10,000 that will not exceed 2 cwt. to the acre; and 5500 that will not exceed 5 cwt. to the acre; or a total of say 65,000 cwt. The best district is East Kent, where the vermin did not attack so early or so severely, but mould is now ravaging the more promising grounds.

AN AGRICULTURAL NOTE FROM NORTH DURHAM.

HARVESTING operations are now in active progress in this neighbourhood; another week of fine weather will see most of the corn in the stackyards. Quality is fairly good, but the yield is not above the average, although much better than the last four or five years. Some samples of new Wheat have been shown in Sunderland market in good order.

Potatoes are being lifted as rapidly as harvesting will allow; quality is very good, but the crop is as a rule light. Disease has not yet done much damage, indeed little of it is seen as yet.

Turnips are improving, and bid fair to be the success of the season. Second crops of Clover, which are very heavy, are being cut both for making into hay and for green food, an article in much request among the dairy farmers in this populous district.

A great number of farmers in this neighbourhood are turning their attention to dairy farming, the large manufacturing centres ensuring a ready sale for any quantity of milk; in fact the supply never seems to equal the demand.

Pleuro-pneumonia has broken out at several places; one dairyman has lately lost some twenty cows through getting an affected animal into his byre. Many districts are completely closed against the moving of cattle either to or from.

It is disappointing to learn that the Show of the Durham County Agricultural Society, although held at Leechmore, in the midst of this rich mining, manufacturing, engineering, and ship-building neighbourhood, was a financial failure. Almost ruined as it was by the failure of the Show, owing to two extraordinary rainy days last year at Jarrow, the Society could ill afford another loss.

Farmers in this neighbourhood complain greatly about the loss of the old-fashioned ashpit manure from the large towns, all the fertilising agents being now sent down the sewers to the rivers or the sea, nothing but ashes and *débris* being left.—PETER FERGUSON.

THE SEED HARVEST OF 1882.—Messrs. James Carter & Co., High Holborn, London (and Mark Lane), write as follows:—"We are now in a position to give some reliable information as to the probable seed crop of the present season, the results in many cases of personal observation. The English crop of Red Clover will be better than last year, both in quantity and quality. Of German and French Reds the crop is also expected to be fairly good. Our reports from America, on the other hand, are very unsatisfactory, the prospects being very poor. It must be remembered, however, that the stocks generally of Red Clover held over are unimportant, so that values will be firm on that account. Of Alsike and White Clovers some very good samples of English seed have reached us. We have also handled a few samples of English White of fine quality; the quantity of the latter will be limited. Of Swedish and German Alsikes the crop is reported to be very moderate, and the quality below the average. Of German White Clover we have received a few samples, for which last season's full values were demanded. We are of opinion, however, that this seed will be better both in quantity and quality than last year, and we expect easier prices in consequence. The English Cow Grass crop is very limited in quantity, and we anticipate that last year's prices will be fully maintained. Of German and American Cow Grass there is promised to be a fairly plentiful crop, but the quality of this will not bear comparison with the English seed. Respecting Italian Rye Grass very favourable reports reach us from the home districts, and the French crop is reported to be also an abundant one. There was no seed, however, carried over, so that prices will be firm, at any rate for some time to come. Crested Dogtail is a much better crop than last year, and we have already secured some very fine samples. Lucerne is expected to be a fair average crop. Trefoil is a light crop; quality variable. Broad-leaved English Rape is a good average; quality very good. The crop of Perennial Rye Grass is a good average one, but as there was no 1881 seed carried over, prices at present are very firm. Sweet Vernal, Foxtail, Fescues, Poas, and other natural Grasses are short in fine qualities; considerably higher prices than last year's values are readily obtained. Swedes and Turnips have come in very satisfactorily, notwithstanding the inclement season that we thought at one time would prejudice the crop. It will be seen from the above report that the seed harvest of 1882 is generally satisfactory, and in almost every respect superior to that of its predecessor."

POULTRY AND PIGEONS

JUDGING AT POULTRY AND PIGEON SHOWS.

WE have at times found it our duty, by no means a pleasant one, to take exception to the way in which poultry and Pigeons were often judged at shows. The fault we had to find was fortunately almost always not with the integrity of judges or with the manner in which they, under the circumstances, performed their duties; but with the circumstances under which they were called upon to perform them. Far too frequently a number of pens was allotted to a judge which it was perfectly impossible for one man to go through carefully and critically in a single day; but more than this, a judge was often sent into a show tent full of some four or five hundred pens at 10 o'clock A.M., with the request that he would finish making his awards by noon or one o'clock, so that on the admission of the public the pens might at once present a proper appearance, gay with their many-coloured prize cards, and exhibitors could not complain of any delay!

As we have in the past commented severely on this state of things we are particularly anxious now to acknowledge that a great change for the better has taken place. In the schedule of almost every large show is published an imposing array of judges' names, not two or three as formerly, and generally particulars as to the classes upon which each adjudicates. Some of them, too, only take one or two breeds, their own special fancy. This is an excellent arrangement, and one which we should be glad to see, as far as possible, further extended. As a rule, no man is a really good judge of a variety which he has not himself bred. It is easy enough to learn

points of excellence, but very difficult to know where to look out for faults or tendencies to faults, the detection of which is one of the nice points of judgment, without a thorough acquaintance with each variety acquired by daily observance of the growth and development of birds in the home yard. At the same time, when once some experience and confidence in judging has been gained by one who begins with special breeds in which he is quite at home, his critical faculty improves in a wonderful manner. He acquires a power of observing and appreciating distinctive points in other varieties, and of picking up information on them from other judges and breeders hardly comprehensible before. It is thus that good all-round judges are made, and we know that one or two of the very ablest we now have, both in the poultry and Pigeon lines, have thus gained their skill and discrimination.

Exhibitors are often too ready to exclaim loudly at any supposed mistake in judgment. With prize list in hand it is easy enough to pick holes in the awards, but we can assure our readers that the position of a young judge who for the first time finds himself before a long row of pens is by no means an enviable one. The birds look more alike than any lot have ever looked before. He walks once down the line, and one or two seem to stand out a little before their neighbours; they change their positions, and on the second view others seem decidedly their superiors. Haste is almost certain to cause bewilderment. It is only after a quiet and undisturbed survey of the class from different points of view that the judging faculty asserts itself. It is quite enough for a beginner thus to be tried in his own particular breeds. It is not long since the paucity of good Pigeon judges was specially deplored. The committees of two or three shows have gone to work in the most sensible manner to remedy this increasing difficulty. Mr. Bulley has once or twice been invited to judge the Toy varieties, of which he has been so successful a breeder and exhibitor; and quite lately at Bingley, where specially good classification was given to Turbits, Mr. G. Webster adjudicated on them—his special fancy. We would gladly see these examples further followed, and feel sure that in the future only really well and carefully judged shows will continue to be popular and successful. It is hardly necessary to enlarge upon the advantages of employing so many judges that none may be overtaxed. We know well from experience the great evil of a judge being overworked. Only those who have undertaken the office fully realise the combination of bodily and mental fatigue entailed by continual pacing up and down long halls or tents for several hours, while every power of thought is exerted to carry at once in the mind's eye many far-divided specimens, and to place them all in their proper order of merit. Only those who have experienced it know the great difference between the feeling that a certain number of awards must be made within a given time, and the contrary feeling that no awards must be made till there has been time thoroughly to study each class and to master it. The one makes judging an irksome task, the other to a real fancier a great pleasure.

Practice makes perfect, and some judges become extremely quick in taking in a class, and extremely accurate in remembering each bird as they pass, and carrying it on in their mind's eye for comparison; but there are limits to this rapidity. We are always suspicious of the boasts we hear of those whose eyes comprehend a whole class at a glance, and who make their awards with a few dashes of the pencil. The quickest eye can at best only take in what the birds look at the moment. A class to be thoroughly well judged must be seen from various points of view—must almost be watched. A feed makes the greatest difference to some birds, or a little rest after a long journey. For many reasons we dislike a system pursued at some shows of starving all the exhibits till they have been judged. It gives an advantage to exhibitors who live near. The strong birds and last fed look best and show themselves to the most advantage; while perhaps the best, just penned after a long journey, may be faint, ruffled, and peering eagerly about for food. It is the part of a good judge to observe the birds so carefully as to take into account these almost unavoidable advantages and disadvantages of different exhibitors. We have often seen the prizes apparently well placed in the morning, but by the afternoon it appears that some decided mistake was made—viz., one of the best birds passed over for want of condition, simply because it was tired or not at home in the pen. A little more time would have enabled the judge to recognise its merit.

Such a real study of a class as we have described is only practicable where the judges' work is well and judiciously distributed. It requires, too, nerve and a clear head in the judge. An incompetent and ignorant person generally becomes more puzzle-headed from delay. He had better place the birds as best he can from first impressions. However, only such a moderate and appropriate share of work as can thus be thoroughly done is now at most good shows given to each judge. We are greatly pleased to hail the change,

and feel sure that nothing is more sure to please exhibitors and to extend the fancy. All must make occasional mistakes; for these all reasonable people make full allowance. But after much care has been expended in bringing birds to perfection, or when large sums have been given for them, it is extremely provoking and disheartening to see their merits passed by solely because a judge is pressed for time and hurried and cannot do his best. We really believe that it is possible for one who thoroughly understands the breed before him, and has plenty of time and confidence, so to make his awards in a class as, barring particular fancies and idiosyncracies, almost to defy reasonable criticism and complaint.—C.

CHICKENS' FACES SWOLLEN.—Will any of your readers kindly state the cause of swollen faces in Turkeys and chickens, and what treatment they require to remedy the ailment?—J. C.

OUR LETTER BOX.

Weeding a Hedge (Hortus).—The bottom of the hedge to which you refer as producing weeds which spread to the adjoining roadside can be best kept within bounds by paring off the turf, or turning a sod from the roadside to the bottom of the hedge, which will probably prevent any weeds or running grass spreading into the road. If the hedge is properly trimmed twice a year no manure or other application will be required, nor can any weeds seed and spread over the roadway.

Farm Account Book (W. B. Butler).—You can obtain Webb's Farming Account Book by application to the office of W. H. Smith & Son, booksellers, &c., 186, Strand, London, W.C.

Milking Cows (John Ross).—The number of times a cow should be milked in four and twenty hours will depend, even during the first few weeks after calving, upon the quantity the cow gives. In the case of great milkers, when milked only twice a day they will sometimes drop and waste their milk between the periods of milking, in which case they may be milked three times during the twenty-four hours, otherwise it often leads to the cows being wasteful of their milk ever afterwards more or less. In the event of cows not being milked dry each time, the milk, or cream rather, which may be left in the udder will coagulate and form what are called can-bagged udders, and in such cases they frequently lose one or more teats; besides which they will not only not continue to yield milk for the full period, but will also be subject to the downfall in the udder, or puerperal fever, which not only endangers their life at calving time, but renders them useless as dairy cows ever after. In the case of a heifer with her first calf it is a good plan to keep the calf sucking the dam for two or three months, the calves being the best and cleanest milkers. This plan has an excellent effect on the milking value of the cow in the future.

Cropping Land—Lucerne Culture (J. W.).—If you could find a ready sale for Lucerne you may grow it with profit in the following manner:—Plough and press the present Oat eddish, sow 3 cwt. Peruvian guano, or 4 cwt. dissolved bones per acre, and three bushels of Rye immediately after the presser, then work it in together by the harrows, and in the spring sow 20 lbs. per acre of Lucerne seed, and drag or harrow the land sufficient to bury the seed. The crop of Lucerne would be ready to cut several times the next year. If there is no sale for Lucerne as green fodder, which there is not in some districts, then plough and sow the Oat eddish next spring with four bushels of early field Peas per acre, drilled 14 inches apart, and sow behind the drill the same dressing as above stated and harrow in; the land will then, if clean, be in good order for a crop of Wheat or Barley. The next year, if not clean, make an autumn fallow after the Peas are off.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
September.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun. 17	30.009	53.6	49.5	N.W.	53.8	67.2	45.7	105.4	42.0	—	
Mon. 18	30.037	55.0	50.3	N.	54.5	63.8	47.8	107.0	44.3	—	
Tues. 19	29.976	50.4	48.8	N.	54.4	58.0	45.9	58.5	40.8	0.523	
Wed. 20	29.703	60.4	57.4	N.E.	54.3	63.0	50.1	97.1	49.6	0.021	
Thurs. 21	29.805	56.3	55.2	N.	54.3	62.5	47.3	93.8	40.8	—	
Friday 22	29.900	56.8	52.4	N.	53.9	65.9	47.2	115.3	42.6	—	
Satur. 23	30.034	47.8	47.8	N.E.	53.4	59.6	40.9	66.0	35.7	—	
	29.923	54.3	51.6		54.1	62.9	43.4	91.9	42.3	0.544	

REMARKS.

- 17th.—On the whole fine and bright, but cloudy at times.
 18th.—Bright and fine in the morning, afternoon rather cloudy.
 19th.—Wet all day, dry evening.
 20th.—Heavy rain early, dull cloudy day, but with some sunshine in morning and a little rain in afternoon.
 21st.—Dull showery morning, fair afternoon with some sunshine, fine evening.
 22nd.—Fine sunshiny day.
 23rd.—Fine, but rather foggy all day.

A rather changeable week. Temperature rather above that of the preceding week, but still slightly below the average. Pressure also slightly above that of the preceding week.—G. J. SYMONS.



5th	TH	Sale of Osborn's Nurseries at the Mart, Tokenhouse Yard. Sale
6th	F	of Plants by Messrs. Baker & Sons at St. Hilda's Nursery,
7th	S	Sale of Bulbs at Stevens's Rooms, Covent Garden. [Harrow.
8th	SUN	18TH SUNDAY AFTER TRINITY.
9th	M	
10th	TU	Royal Horticultural Society, Fruit and Floral Committees at
11th	W	[11 A.M.]

PLANTS FOR MOIST POSITIONS.

IN former notes I described my method of making a bog garden, I now purpose noticing a few useful plants suitable for such a position. It must be understood that a thoroughly made bog garden admits all moisture-loving plants; thus a great variety can be grown. By varying the height of the soil above the general level such plants as *Androsace carnea*, *A. Laggeri*, *Houstonia cærulea*, and some of the better alpine *Primulas*, can be suited with a moist but well-drained position, as can also *Gentiana bavarica* with a swampy one. Those who have seen Mr. Whitehead's famous garden at Bickley, Kent, can testify to this. I have never seen *Lobelia fulgens* in such magnificent condition as in a wet peaty bog, where its noble branched spikes exceeded 5 feet in height. A moist but well-drained position suits *Allium pedemontanum* better than any. It is desirable that it should be planted so that its heads of purple-blue pendant flowers could be seen on a level with the eye. I have tried this plan, but have not been very successful. Planted on elevated or dry positions they are affected by short seasons of drought in early spring. Watering will not compensate for insufficient rain, and I have in my mind a case of planting on a ledge, when injury resulted which took more than two years to rectify. It is a rare and most desirable plant, and the best of all the *Garlics* known to me. Seeds are very slow to germinate, and are better kept in a cool frame until they do. It scarcely admits of division, and needs careful watching, as garden pests, especially slugs, are fond of it. It is quite hardy, and fully repays any attention given it.

Some of the better alpine *Anemones* will probably find a better and more comfortable home in a well-drained part of the bog than any other position. No doubt they are more in character planted in somewhat elevated fissures, but the question gardeners in this country have to consider is, Will they grow there? We have no melting snows to keep the higher alpenes moist and cool. Rock gardens seldom receive a top-dressing of leaf soil, peat, or other decayed vegetables, however often the necessity of doing this suggests itself. Probably our ideas of neatness in this as often in other matters prevent it, and it is in consideration of the vast amount of decayed vegetable matter—yearly top-dressings, so to speak—which supports mountain plant life that I recommend the culture of alpine *Anemones* in the drier parts of the bog garden. To impart a general porosity or sweetness to the soil broken stone may be used. Besides the above-mentioned, the following and almost any other dwarf *Anemones* may be grown under conditions as above described. *A. narcissiflora*, a species producing

branched leafy umbels of proportionately large white globular flowers from amongst pedate, hairy, radical leaves, is a most desirable acquisition, but difficult to increase, seldom producing more than a single crown. Seed of this will sometimes be in the pans for three years before germination. I have never been able to raise more than a single plant from hundreds of seeds, and my impression is that the seed ought to be sown as soon as gathered. This is not a bulbous or tuberous-rooted species, but one which dies back to an enormous crown, in which are contained all the essentials for next year's growth and flowering.

Anemone alpina var. *sulphurea*, though not so fastidious as the Siberian or *Narcissus*-flowered species, is, perhaps, nowhere seen to such advantage as planted in shaly peat. I believe, however, that in the more salubrious climate of the western counties it does not need very considerable attention. On the eastern shores an almost yearly period of drought in spring time has to be taken into account. In May, sometimes earlier, large sulphur-coloured flowers are produced, subtended by pinnately divided almost Fern-like leaves. In age a semi-woody rootstock develops above ground, which needs earthing-up with peaty soil and small stones. This, together with the vernal species, the Pasque-flower—in fact all which form this woody rootstock, delight in having their roots along the face of some stone or boulder for instance; and to meet their requirements in this way stones may be placed 1 foot or so beneath the surface before planting. Seeds sown in autumn should germinate the following spring. I have seen a very good patch of *A. thalictroides* which came from an undeniable source, but can only describe it as a bracteated and very pretty form of the common Wood *Anemone*. Another neat little species in the way of *A. nemorosa*, coming from Columbia, named *A. deltoidea*, might be added to the list. For this a little shade is essential.

Asters furnish few species worth growing in the peat bog; only one occurs to me now, *A. confertus*. I have searched for some record of it, but have been unable to find any. It came to us from the Rev. Harpur-Crewe, so there can be little doubt about the correctness of its name. It is a very stout-growing species, answering well to its specific title, being very compact; attains the height of 5 feet in the wettest parts, and is very showy, having flower-heads individually of the type of *A. Chapmani*. *Astrantia carniolica* would make a capital companion to the latter. It is never seen so much to advantage in any other part of the garden. Its light rosy heads are produced in umbellate fashion, subtended by leafy bracts.

Epigæa repens, the New England Mayflower, ought to be in every good garden. Its culture is not difficult; all that is needed is sandy peat, good drainage, never being allowed to become dry on the surface. When its little bunches of *Stephanotis*-like flowers expand a handlight, whitewashed inside, ought to be placed over it as protection from frost. In the moister parts of the bog it grows luxuriantly, increases rapidly, and is quite an attractive plant. Being a member of the Lily family it dies back in autumn to a bulb-like crown. A fine larger-growing plant is *Camassia esculenta*. This is also a border plant, but is better seen in the bog. It is a true bulbous plant, bearing fine spikes of blue upwards of 2 feet high. *Chrysosplenium alternifolium*, though a common plant, is generally admired by all visitors. Nothing surpasses it as a carpeting for larger plants. It will grow in the swampiest parts, and

blooms from early spring until autumn. Another useful plant, giving no trouble whatever, though only a biennial, as it sows itself so freely, is *Claytonia siberica*; there is only the danger of getting too much of it. Some who saw it as grown in one of the very best bog gardens in this country admitted never having recognised its beauty so fully before. In this case it had strayed away from its first habitation amongst a rather dense carpet of the lovely *Equisetum Drummondii*, its stars of lovely rose alone peeping through here and there in patches. *Comarum palustre*, or *Potentilla Comarum*, need only be mentioned as a Strawberry-like British plant for the wettest parts.

If any low bush or trailing shrubs be wanted the *Daphnes* will furnish some of the most easily adapted. In planting trailing species, either *D. Cneorum* or *D. rupestre*—relatives, the latter being rarer—a good plan to adopt is to just cover the bottom of a boulder; place your plant to hang over this to south, east, or west, and back the bare stems, if any, with another large stone, filling the intervening space with peat and stones. *Daphnes* do not like limestone.

All the American Cowslips are at home in well-drained peat. The varieties of *D. Meadia* do almost anywhere, but *D. Jeffrey-anum* and *D. integrifolium* nowhere so well as in peaty soil with stones. *Erpetion reniforme*, the New Holland Violet, is, as generally grown on the rock garden, only an annual; but in a shady position amongst stony peat it becomes so much a perennial that at least a patch may be preserved for a very considerable time. Its seeds are carried about, and it appears in various places away from the parent patch, but in the case of such a lovely little plant that is not objectionable. The Dog's-tooth Violets, especially the better kinds, are at home in company with the *Erpetion*; like it they grow in any moist well-drained soil. It is generally noticed amongst growers of these special kinds—to wit *D. americanum*, *D. albidum*, *D. giganteum* var. *grandiflorum*, and *D. grandiflorum* (the lovely dwarf twin-flowered species), that planted amongst ordinary alpine they yearly dwindle away both in quality and numbers; the reverse, however, is the case in the bog. *Gagea lutea*, a British plant, if allowed to ramble about—a curious thing for a bulbous plant to do—is quite an interesting acquisition. The habit and character reminds me of *Ornithogalum umbellatum*, the flowers opening and closing with the sun, but they are yellow.

It will be seen from the above that my idea of a bog is the inclusion of all, or nearly all, plants of merit which prefer a moist situation, whether well drained or swampy, and which prefer peaty soil in this part of the garden. To meet the various requirements soil and position can be easily altered in all the cases I have mentioned. I am writing principally for residents of the drier east coast, where my experience has generally been gained. I intend giving some further notes upon suitable plants for the bog garden.—M. B.

MUSHROOMS FOR THE MILLION.

MARKETING THE CROPS—PUNNETS.

(Continued from page 217.)

As previously observed Mushrooms are packed in punnets, and a few particulars relative to these articles that are sold by millions annually at such a cheap rate will not be uninteresting, but, on the contrary, may be serviceable to many readers of this treatise. Vast numbers of gardeners even know little or nothing about the manufacture of the small, handy, and cheap chip punnets that are seen in nearly every green-grocer's shop and fruiterer's window; and if they were asked where they could be obtained, and at what price, it is certain that not one in twenty would be able to give an accurate reply. This being so, and the statement cannot be controverted, the need of information on the matter becomes apparent. Among other places where these useful articles—indeed indispensable to the Mushroom grower—are made, Brentford and Hammersmith must be named as "seats of manu-

facture," and it appears as natural for the industrial population, the old and young of both sexes, to make them there as it is for fowls to scratch in seed beds or boys to take Apples when they are offered, or when "nobody is looking." It is only by much practice and dexterity that the thick shavings can be so deftly worked into baskets, as, when sold at the current rates, to leave a margin of profit behind them. Many, however, are made in the evening after the regular labour of the day has ended, and thus odd moments are commendably turned to account, while children are taught habits of industry and are content to earn a few pence at the work in question. Thus it is that the punnets cost so little as often to be given away with fruit that is sold in them. But they are not quite given away with Mushrooms, as it is the practice in weighing them into pounds to throw a punnet into the scale and not on the side containing the weights; still, if the scales were balanced with the greatest exactitude, the purchaser would not give more than a farthing for a punnet, and it is worth that for the convenience of carrying the Mushrooms home, apart from any use to which it may be applied afterwards. But in practice the weighing cannot be done with such great nicety, and as the "draw" of the scale is always in favour of the purchaser he practically gets his little basket for nothing. They are sold in rolls of three dozens, as represented in the annexed sketch (fig. 52), which also affords an idea of the number required and used in a Mushroom-growing establishment. They are employed in three different sizes—namely, for "buttons," 5 inches in diameter and 3½ inches deep, and known as "deep pounds;" for "cups," 6½ inches in diameter and 2 inches deep, known as "flat pounds;" and for broilers, 5½ inches across and an inch deep, sold as "halves." The price of course varies with the size, deep pounds and flat pounds being usually obtainable for 6s., and halves 4s. per gross. With the object of rendering these notes substantially useful it may be stated that the stock from which the figure was prepared was obtained at the prices quoted from Mr. P. Nicholls, 377, Goldhawk Road, Hammersmith. It may be that other makers may sell them even cheaper, and if so they need have no difficulty in making the facts known; in the meantime Mr. Nicholls will presumably not seriously object to the mention of his name in connection with this apparently simple yet certainly not unimportant subject, for the question of punnets is one of the essentials in the industry of Mushroom-growing for market purposes.

PACKING MUSHROOMS.

When large quantities are gathered it is customary for two men to be engaged in weighing and packing—one sorts them from the hampers, quickly divests them of any loose particles of soil or manure from the tops or roots, and weighs them into pounds; the other places them in the punnets and ties them down. Packing must be neatly done, as a little care in this respect adds materially to the saleable value of the stock, while scarcely any more time is incurred in the process than by doing the work roughly and without thought. It is not the habit of experienced growers of garden produce for the London market to place the best samples at the bottom. If the produce is good all through, as it ought to be and often is, still care is exercised to select either fruit or Mushrooms of uniform size for

the uppermost layer. It is from this practice that the very expressive word "topper" originated as denoting anything of exceptional merit; and though the term is perhaps not found in all dictionaries it is much more than a provincialism, as it is widely used and well understood over the greater part of the country. In packing Mushrooms, then, do not forget the "toppers,"



Fig. 52.—Punnets.

but let the work when done appear as represented in the figures on pages 216, 217. Provided the whole produce is saleable, as it ought to be, and must be if a vendor is to maintain a position, there is no more deception in arranging the specimens neatly and attractively than there is dressing a horse for the fair, or legs of mutton or poultry for the market. But all must be done fairly and honestly. The man who fails in this respect by hiding unsaleable produce will sooner or later be inevitably shunned—unable to dispose of whatever he has to sell, and serve him right. The best of garden produce may be seriously deteriorated, because made more or less unsightly by rough usage and defective packing. In fact, it may be stated without hesitation that hundreds of pounds are lost annually by want of care in this respect, and vendors are disappointed while purchasers are dissatisfied. It becomes necessary, therefore, to emphasise the importance of placing whatever is good in the market in the best manner, including Mushrooms, as by this course purchasers are attracted, whereas by the opposite habit of careless preparation and arrangement they are certainly repelled.

PACKING THE PUNNETS.

After the Mushrooms are papered neatly and secured with raffia, which is the best and cheapest tying material, the punnets are packed in light yet sufficiently strong boxes, such as anyone can make who can use a saw, hammer, and nails, appearance here being of little moment. Neither is it material that the boxes be of a particular size; still, it may be submitted that those of the following dimensions are found convenient

for moving and arranging in vans without loss of space—3 feet 2 inches long, 1 foot 11 inches wide, and 1 foot 4 inches deep, an inch batten being nailed across the inside of each end 8 inches from the bottom. This is for supporting a floor or shelf after the bottom of the box has been occupied with punnets. From fifty-six to sixty punnets can be accommodated in what may be termed the two layers in a box of this kind; and a little clean hay being used if needed for making the punnets firm, with a few strips of deal tacked across the top for protection, the produce may be sent any reasonable distance without fear of injury. Salesmen in London are glad to dispose of good Mushrooms, and the leading greengrocers in the large provincial cities and towns can rarely obtain sufficient to meet the demands that already exist, while if the supply were greater a further demand would without doubt be created. But if by chance the supply should be excessive, of which the probability is extremely remote, even then the successful cultivator can not only ensure himself against loss, but can realise a fair profit by the manufacture of ketchup—pure, honest, genuine, unadulterated ketchup. This is always in demand, and it is not generally known that Mushroom-growing well conducted on the system described is lucrative, even if the whole produce is what may be termed "melted down" into this favourite condiment.

CONCLUSION.

In the preparation of this treatise, which in its serial form now terminates, endeavour has been made to give the several details of culture by which alone success can be achieved. Trivial some points may appear to the uninitiated, but the experienced cultivator will recognise their importance. It is by attention to small matters that great results are accomplished, and the advice that was given to the writer many years ago by one of the greatest and best



Fig. 53.—Packing Mushrooms for market.

of men in the ranks of horticulture, and found useful, indeed most valuable, may not inappropriately be given to others, as, to the young especially, it may prove useful too. "In whatever you do," said Mr. G. W. Johnson, the founder and late Co-Editor of the *Journal of Horticulture*, "either in writing or working, do not ignore the simplicities that bear on your object,

but attend to what are termed small matters and master them. . . . 'I promote,' said Napoleon, 'the man who is capable of utilising small details; any elephant can lift a hundredweight, few can pick up a pin.' " Let that advice be followed, and the sentiment be remembered by all who wish to excel; it applies strictly to the subject in question. Master the small matters, and what is truly great will be attained—success.—J. WRIGHT.

P.S.—By special request the above treatise, with such additions as will be appropriate, will be embodied in a pamphlet. This will be published at the lowest possible cost consistently with defraying the expenses of publication, remuneration being neither sought for nor expected, the sole object being to place sound information on an important subject within the reach of all who are in a position to turn the plain teaching to profitable account.—J. W.

STRAWBERRIES IN POTS.

STRAWBERRY plants should now have their crowns large and plump, the pots being well filled with roots. But much may yet be done in furthering their development, and careful cultivation during the next month is as important as in any previous period. The freedom with which the Strawberry fruits in pots often causes these plants to be neglected after they have attained a fair size. Often large plants prematurely developed are not so good as those of a smaller size with thoroughly ripened crowns. The plants during the whole season should be placed so that they are freely exposed to light and sunshine; at the same time weak stimulants may be given each time the plants require water. Stimulants are often given too early in the season while the plants have ample food in their pots if a good compost was employed, yet in autumn they are neglected when they most need attention. It is from this time onwards that feeding is of the greatest importance, when the pots are or should be well filled with active roots.

To satisfy myself as to the importance of liberal feeding these plants until thoroughly matured, I took two batches of plants of the same variety, equal in every respect as far as appearance when selected. One lot was watered well and as frequently as required with clear water, while the other batch was supplied with weak guano water every time watering was necessary. At the end of the season the latter batch had a little the finest crowns. In spring the treatment of the two batches was exactly the same, but those supplied with stimulants had flower-stems very much stronger than the other plants, and the difference in the size of the fruit was equally conspicuous. Our plants were layered in their fruiting pots early; they grew rapidly without a check, well filled the pots with roots, and liberal feeding has been practised for some time. This has been the most sunless season I have experienced since I took charge of the gardens here. Rain fell so frequently that at one time before the pots were full of roots we feared the soil would be saturated. In spite of the weather, however, the plants are now of a large size, with well-developed crowns and abundance of roots—in fact, so full that with the majority of the plants it is impossible to discern the drainage at the bottom.

Those layered first and kept in 5-inch pots are in a well-ripened condition, and already showing signs of rest. But those in pots of a larger size are not so forward, although some of them were layered at the same time. I have always been able to produce fruit earlier and better from plants confined at their roots early in the season. When in large pots they continue growing for several weeks longer in the season. To bring these plants into a resting state by drying them at the roots and placing them under glass as practised in some gardens is a great mistake. How can plants be expected to fruit and do well when forced to rest while their growth is not mature? To place them under cover for the purpose of sheltering them from autumn rains is a disadvantage rather than otherwise. The protection of glass is not needed for Strawberries, as it only induces them to keep moving slowly until late in the autumn. Cold induces complete rest sooner and more naturally than any artificial treatment. A few sharp frosts are very beneficial to those plants required for early forcing, and the plants start with greater freedom and vigour into growth when introduced into the forcing house or pit. I used

to fill shelves in my early Peach house when closing it for forcing, but have discontinued the practice, as the plants are better outside for the three weeks or a month before fire heat is applied. Forcing here is commenced gently when the Strawberry plants are introduced, and we can gather earlier under this system than by placing them under glass early in November. The change from the cold and complete rest they enjoy outside to the gentle warmth of any house in which they are to be started soon starts them. But the secret of early forcing is, early runners to commence with, early matured growth, which can only be obtained by employing small pots in a wet locality, and early rest.—W. BARDNEY.

SINGLE DAFFODILS.

DAFFODILS have already begun to put out new roots in preparation for their spring flowering, and will continue in active growth all winter, so that the best time for dividing and transplanting them is already past; but as many gardeners have not yet ordered their bulbs for spring flowering it may not be too late to say a few words about them. The single kinds are most in favour now. Some of the more elaborate bulb catalogues offer a list of them quite perplexing from its length, and it becomes more difficult every year for beginners to make a selection. We find them offered at all prices, from 5s. or more to 2d. or 3d. each, and some of the best are to be found amongst the cheapest.

The genus *Narcissus* may be divided for convenience into five sections, though the limits of each section are by no means definitely marked. They are, first, the Daffodils proper, called pseudo-*Narcissus* or False *Narcissus*, because they wrongly claim to be the flower into which the youth *Narcissus*, who died of admiring himself, was fabled to have been transformed. Of this section the common single wild Daffodil of our meadows and orchards is taken as the type. The second section is the *N. incomparabilis*, the Nonsuch or Nonpareil Daffodil, with a broad open flower and shallow crown, of which there are now a very large number of varieties, both double and single, though scarcely one of them is handsomer than the old type of the section with yellow petals and rich orange-coloured crown, of which the origin is unknown. Next comes the Jonquil section, the name of which is derived from the French form of the Latin word *juncillus*, a little Rush, because many of them have Rush-like leaves. The type of this section is *N. odorus*, the large Campernelle Jonquil. The fourth section comprises *Narcissus* proper, or Poet's *Narcissus*, which passes through the well-known form *N. biflorus* into the many-flowered section—the *Polyanthus-Narcissus*, called by Linnaeus *N. Tazetta*, a class which contains florists' or local varieties of perhaps older standing than those of any other section. It is of the first section, or the Daffodils proper, and of the single forms of them, that it is proposed to speak more particularly in these notes.

It is very difficult, and botanists almost despair of being able, to define accurately the limits of the different species of the genus *Narcissus*. Some treat of the Daffodils proper as if they all belonged to one species, of which, as I said above, the type is *N. pseudo-Narcissus*, the common wild Daffodil; but from a gardening point of view the forms of the species are so very distinct as to make their specific distinctions a matter of little importance to gardeners. In catalogues they are often classed as the "Ajax" section, as a writer on the genus at the beginning of the century distinguished the members of it by the names of the Homeric heroes. It is also called the "Trumpet" section, from the trumpet-like form of the central tube. The number of varieties in this section is now very large, and as they are the handsomest of the tribe I propose to mention separately about ten of the single varieties, including those most distinct from one another in form and colour, and selecting those which may be bought from any large bulb shop at a low price—from 2d. to 6d. each. I will first mention *N. Bulbocodium* (which means "bulb with a small trumpet"), the Hoop-petticoat Daffodil, not because I can give much hope of its being successfully cultivated as a perennial occupant of English gardens, but because it is so pretty and may be bought so cheaply that it is worth trying. It is peculiar in its requirements of soil and climate, and none of us know what they are. As it flourishes well in some parts of Northumberland it cannot be cold alone which causes it to fail.

The others I shall mention as nearly as I can in the order in which they flower. The earliest of them is generally *N. nanus*, the common old dwarf Daffodil of gardens, often sold under the name of *N. minor*, which begins to flower soon after the Snowdrops and continues a long time. It is not more than 3 or 4 inches high, and should be planted close to the edge of the bed. In good soil it increases fast. Next comes *N. obvallaris*, the Tenby Daffodil, which has been established abundantly in some meadows near

Tenby for many generations. In height it is about the same as the common double Daffodil, in colour nearly uniform dark yellow. It has a flower of great substance, which lasts for a long time, sometimes more than three weeks. In my garden it increases fast, flowers freely, and is one of the best of the single Daffodils. The next two, *N. maximus* and *N. spurius*, flower about the same time—a few days later than the beginning of Daffodils. The former is one of the largest in flower and in height, and one of the brightest in colour, being of a very rich golden yellow, elegant in form, and with a stalk sometimes 3 feet high. It is called in some catalogues *N. obvallaris maximus*, but is imported from Holland as *N. maximus*. *N. spurius* is also sold as *N. Telamonius*, and is often considered to be the single form of the common double Daffodil, though the parentage of that is uncertain.

N. bicolor Horsfieldi is a grand Daffodil, which I have selected as the representative of the Daffodils which have a white corolla round a yellow tube, because it is the most vigorous as well as the cheapest of the section. It is the handsomest Daffodil in common cultivation, though the flower does not last so long as that of *N. maximus*. *N. lorifolius*, having a bright primrose corolla round a tube of bright yellow, is a well-formed and fine flower, and is intermediate in colour between *N. spurius* and *N. bicolor*. It is strong in growth and increases fast. The last I shall mention is added because of its distinctness, being of a nearly uniform cream colour. It is rather dwarf in growth, and has not the vigour of the others, nor does it increase as fast. Still it should be added to the collection I have named, which comprises the most distinct as well as the cheapest single Daffodils to be found in the catalogues.

There are several points of importance in the cultivation of Daffodils. Those purchased should be obtained as soon as possible after they have lost their leaves, and be out of the ground as short a time as possible. The soil for Daffodils cannot be too rich, provided it is of good substance. It is well not only to mix manure with the soil, but to give a top-dressing of riddled manure just when the leaves appear above ground, and again when the flowering is over. The soil should be well and deeply dug, but should not be left too loose beneath and round the bulb, but be pressed to a firm consistency. The top of the bulb should be about 6 inches beneath the surface, and a handful of coarse sand should surround it. A position sheltered by bushes or a wall from the north-east is best, because Daffodils flower at a time when east winds prevail, and the delicate white calyx of such kinds as *N. Horsfieldi* is easily injured by a combination of sun and parching wind after frosty nights. Many of the taller kinds require some support, and it is better to arrange sticks in a triangle, so as to make a cradle with tying material, than to tie all the stalks to one upright rod. When full grown the leaves may be tied in a bunch to save untidiness, but should on no account be removed until quite decayed. The bulbs should never be lifted except to divide them, which in no case will be required oftener than once in three years; and they should be then moved directly the leaves are dead, and replanted immediately.—C. W. DOD.

FUCHSIA RICARTONI.

THIS is a fine old plant, and flowers with such profusion in autumn that it should have a place in every garden. Its slender shoots laden with flowers are very effective when arranged with other flowers for decorative purposes. When planted singly in shrubby borders it brightens them wonderfully at this season, but its effect in this position is nothing to a large bed planted with it. Where a garden of hardy plants is required gay as long in autumn as possible, one or more beds should be filled with this useful old plant. It contrasts well with beds of Pentstemons, Antirrhinums, and such plants that flower profusely in late autumn. The growths during the season will require a little regulation, but not much. Slightly thinning the shoots may be necessary, and stopping others that are likely to outgrow their neighbours. It is easily managed when grown in beds, and only requires to be cut close down to the ground annually any time after the foliage and flowers have been destroyed by frost. Whole beds of such plants are much more effective than a miscellaneous collection of hardy plants filling the same space, some of them always being untidy.—B. N.

WASPS.—I have waited till the end of September to record the year's experience (in this district at least) of the abundance of spring and autumn wasps. In the spring we had a most extraordinary quantity. Up to July 30th we had a few about, much under the average. I then left home till August 19th, and on my return found more than I had left, but far less than usual. They increased some-

what up to September 11th, though never appearing in any quantity. On that day a rain of thirty hours began, and since then I have seen scarcely any. So much for a heavy-land country.—DUCKWING.

THE LONDON PARKS.

BATTERSEA.

UNDENIABLY this is one of the most popular of the London parks, as it is the most diversified both in what may be termed its structural character and floral embellishment. Its bold shrub-clad banks with many hues of foliage not only form a fine background to the flower border and beds, but are beautiful in themselves, with in one part their carpet of Ivy and another an undergrowth of Ferns disposed in the most pleasingly natural manner. There are carpet beds, but not in great numbers, in one part; floral panelling in another; subtropical groups luxuriantly picturesque; long stretches of herbageous borders; deep lawn recesses curving into the shrubs, conducting the eye to some fine Musa or specimen Palm, with ribbon borders forming bright margins to the shrubberies, and mixed beds of flowers in appropriate positions on the lawns.

Many visitors reach the park by rail from Waterloo to the Queen's Road station. At this, the east entrance, they see in the season a fine bed of Roses—the old Moss and Crimson Bedder, which show by their health that these are good "town Roses." Now the bed, with borders stretching on either hand, are brilliant with Calceolarias—Gaines' Yellow, which is the only one that gives satisfaction, and hence must be regarded as a good "town Calceolaria." But the greater number of sightseers take the river route, and enter the grounds from the park pier. They there at the outset see a bright arrangement of flowers, and pass on into the centre of the park—the subtropical garden. Perhaps a preferable landing place is the railway pier, as the park is then entered at the north-east corner, and its whole extent can be traversed without the necessity of going over much ground twice.

Turning suddenly to the left on entering the gates the wilderness is first passed through. At the very approach, however, a bird's-eye view of the park should be had from "Mount Pleasant." This eastern walk is new, and in the spring is beautiful by the fine collection of flowering shrubs, while dells here and there add to its attractiveness. One of these has been greatly admired this summer. At the base of a weeping Poplar roots have been piled, and these covered with Clematis Jackmani. From the soil that was added the common Bracken sprung, and was cherished. This has formed a graceful margin to the Clematis, which formed a Brobdignagian bouquet fringed with this handsome Fern. The effect was most pleasing. Other dells of hardy Ferns, the green and variegated Comfrey, Helianthemums, Cistuses, Pyracanthas, Sedum spectabile, Coreopsis, Tritomas, Vincas and Ivies, the graceful and distinct Tamarisk planted on the banks in several, overhanging the smaller occupants, and constituting most picturesque and tasteful portions of the scenery. Before leaving the eastern side of the park the visitor will notice a large bed of single Dahlias bordered with a very handsome scarlet Pentstemon, which, as it is unnamed, we can only refer to as the Battersea Park Scarlet. It has large and richly coloured flowers, which are produced very freely and continuously over a considerable period. This, with purple and rose-coloured varieties, both of great merit, have been obtained by careful selection, and are now propagated exclusively for this park.

Quitting these beds the visitor should proceed towards the lake, taking the path to the right of the boating station, and then turn to the left; a charming walk along the margin of the lake is here found, which passes the "waterfall," the "rocks," and other features of interest. Indeed, on a fine day this is the most attractive walk in the park, and the full beauty of the lake can be admired from several points. At one rather prominent corner some large boulders have been covered with a luxuriant growth of Clematises, Sweet and Everlasting Peas, and Tropæolum peregrinum, which have been allowed to trail and twine about unrestrained. The combination of rose, white, crimson, and purple Pea flowers, with rich blue Clematis and bright yellow Tropæolum, was most striking. Nearer the subtropical garden are the "snow-clad" mounds thickly covered with the silvery white Antennaria tomentosa, at the base being a dense carpeting of Leptinella scariosa and the dwarf Pyrethrum, which possesses what the ladies term a "dreadful" name—i.e., Tchihatchewi. Both these, however, are useful little plants where it is desired to cover a bed with close greenery as a foundation; but they do not appear to have been tried much for carpet beds, and it is doubtful if they would equal either the Gibraltar Pennyroyal or the Herniaria for that purpose. On these mounds also numerous succulent plants impart a distinctive appearance to them, large-growing Crassulas, Portulacarias, Echeverias of the metallica type, and many others being notable. A few yards from the mounds are two carpet beds of simple yet striking design. One, the better of the two, has a ground of the soft grey Sedum acre elegans edged with Echeveria pumila and Cerastium tomentosum, with panels of Alternantheras. The centre is A. versicolor grandis, very richly coloured; and in others of irregular form are amabilis latifolia, amœna, paronychioides major, and aurea, all being of excellent colour, and contrasting admirably with the neutral Sedum. The bed corresponding to this has a rather undue proportion of Golden Feather as a groundwork, with Mesembryanthe-

mum cordifolium variegatum, in which are panels of *Alternanthera amœna* and *A. paronychioides major*.

Passing the ferneries, where during the summer graceful *Cyatheas*, *Dicksonias*, and other Tree Ferns are placed in company with smaller Ferns and fine-foliage plants in a shaded recess, the subtropical garden is entered on the north side, and one of the great features of Battersea Park is at once in view. During July, August, and September there is always much to admire in this department, and in favourable seasons like the present the beauty continues far into October. The usual occupants, such as Palms, Musas, *Monstera*s, *Wigandias*, *Ricinus*, *Cannas*, and *Solanums*, are well represented; but by far the most striking bed of this kind is one filled with *Polymnia grandis*. This plant is very useful where a bold effect is needed, and might well be more generally employed than it is at present. It is suggestive of the large-growing *Solanums* in habit, but is not related to them, being a member of the Composite family. It is of very quick growth, attaining a height of 5 or 6 feet, and bearing large pinnately divided leaves 2 to 3 feet long and about 2 feet broad. The *Polymnia* and *Wigandia* are two of the most imposing plants for a subtropical garden.

Especially deserving of notice is an elliptical bed prettily planted with a groundwork of the variegated Vine (*Vitis heterophylla*), from which arise numerous healthy plants of *Grevillea robusta*. Around the central portion is a neatly trimmed band of the Golden Honey-suckle (*Lonicera aureo-reticulata*), next to this a band of *Alternanthera amabilis latifolia* well coloured, followed by the Golden Spurrey and *Sedum acre elegans*. Another bed of distinct design is of oblong form, having circles of *Mesembryanthemum cordifolium variegatum* and *Sedum Lydium*, in the centre of the former being single plants of *Pincenectitia tuberculata* and *Dracæna marginata*; while in the *Sedum* circles *Pandanus Veitchii* of moderate size is planted. The last-named plant, however, is not quite satisfactory, as after it has been out a short time the leaves assume an unhealthy yellowish tinge, indicating that the conditions are not suitable to it. Angles of *Sedum dasyphyllum*, with plants of *Rochea falcata* and a margin of the above-named *Sedum*, Golden Feather, *S. glaucum*, and *Echeverias* complete the bed. Two circular beds nearly opposite the above are marked by very pretty carpet designs. One has a scroll of *Alternanthera paronychioides major* margined with Golden Feather on a ground of *Mentha Pulegium gibraltarium*, the outer band consisting of *Alternanthera amœna*, with angles of the same. In the other bed is a central cross of *Alternanthera aurea* edged with *Leucophyton Brownii* on a ground of *Mentha*, in the centre of the cross being a quadrangular figure of *Alternanthera versicolor grandis* also margined with the *Leucophyton*, the outer bands of the bed being *A. amœna* and *Sedum acre elegans*. Several other carpet beds are pretty; but these two, though very simple, are the most effective and pleasing.

The ordinary flower beds are well represented, those near the Albert Bridge entrance to the park being the most showy; but in various suitable portions of the park gay beds and borders are observable. The borders round the shrubberies, especially those by the chief roads, are tastefully planted, the white and red Japanese *Anemones* being freely employed with excellent effect near the river. Beds of mixed herbaceous and ordinary plants also serve to break the monotony too frequently prevalent where bedding is largely employed; in fact, every portion of the park bears testimony to the skill and care exercised by Mr. Roger in rendering it a charming resort both horticulturally and popularly instructive.

FINSBURY PARK.

What Victoria Park is to the east of London, and Battersea to the south-west, so is Finsbury to the north, each in their particular districts enjoying an equal and well-merited popularity. The northern park, however, is comparatively young, and it is surprising how rapidly it has been advanced to a foremost position amongst such metropolitan pleasure resorts. The situation, though somewhat exposed to the northerly and easterly winds, is in other respects admirably fitted for the purpose, commanding extensive and varied views; but the prospect in one direction is being seriously obstructed by the fast-extending buildings. Fortunately, however, the valley to the north-east is so low the view that way is in no danger. The shrubs, notwithstanding their exposed position, are becoming well established, the common Laurels appearing very luxuriant in some parts, while in the more sheltered portions *Rhododendrons* are thriving most satisfactorily. Amongst the trees the Black Italian *Poplars* succeed by far the best, growing fast and strongly, and within ten years a handsome avenue of considerable length has been formed. In other parts of the park this tree has also been freely planted with good results.

Bedding is not extensively represented, but wherever it is attempted it is thoroughly well done, much care being exercised to obtain vigorous plants of good size before placing them out, so that the beds never have a bare appearance. The principal flower garden occupies a position at the highest portion of the park, but well sheltered by an encircling belt of shrubs, a walk passing through the centre, with an equal number of beds on each side. These are not of elaborate design, being chiefly oblong, elliptical, or circular, with a few angular beds between them. The front row on each side consists of oblongs and small circles alternately, the latter filled with *Herniaria glabra* or *Veronica repens*, and central circles of

Alternanthera aurea, *A. versicolor*, or *A. magnifica*, the oblong beds being devoted to the bronze *Pelargonium Marshal MacMahon*, which succeeds very well there, or the tricolors *Macbeth* or *Lady Cullum*, the last named colouring well. These beds are margined with *Iresine Lindenii*, *Mesembryanthemum cordifolium variegatum*, and *Echeveria secunda glauca*. Two of them are filled with *Princess Alexandra Pelargonium*, which is unquestionably one of the best white variegated forms, but unfortunately rather difficult to increase. At the back are several large circles of *Cannas*, around which bands of *Abutilon niveum aureum maculatum*, *Waltham Seedling Pelargonium*, *Ageratum The Queen*, a free-flowering variety of fine colour and vigorous habit, *Lobelia Omen*, and *Echeverias*. In another bed *Edward Sutton Pelargonium*, a rich dark scarlet variety, is surrounded by *Crystal Palace Gem* and *The Bride Lobelia*, a very good white form, free, compact, and pure in colour, forming a pleasing contrast. But perhaps the most effective beds of all are those planted with *Verbena venosa* and *Centaurea ragusina* and *Cineraria maritima* mixed, the purple flowers of the *Verbena* and the silvery white foliage of the other plants harmonising most agreeably. Mrs. Turner and Mrs. Holden, two good pink *Pelargoniums*, are noteworthy. Amongst other varieties represented, *Lobelia Finsbury Park Blue*, a rich-coloured variety of good habit, and *Calceolaria Little Gem*, very dwarf and free, are similarly deserving of notice, for they both succeed remarkably well. The ribbon border skirting the shrubs consists of the pink *Cleopatra* and scarlet *Bonfire Pelargoniums*, margined with *Golden Feather*; and another pretty ribbon border near a dell devoted to Palms and other subtropical plants during the summer is planted with *John Gibbons Pelargonium* and *Centaurea* in semicircles.

Subtropical gardening is not attempted on a large scale, but a number of small beds are so planted in the more sheltered walks, and have a pleasing effect; circles of *Eucalyptus*, *Acacia lophantha*, *Solanum marginatum*, *Abutilon Lemoinei*, *Abutilon niveum aureum maculatum*, and others being margined with scarlet *Tropæolums*, one seedling form of the latter being very meritorious, *Santolina incana*, *Lobelia pumila magnifica*, and similar dwarf plants. Long ribbon borders near the shrubberies are also occupied with herbaceous plants in considerable variety, the early-flowering *Chrysanthemums* being just now the most attractive, well indicating the value of these plants in autumn. Indeed, in several instances where it has been considered prudent to remove the larger specimen subtropical plants, such as Palms, under cover, their places have been filled with these *Chrysanthemums* plunged in pots.

Though the glass houses are not very numerous, a large quantity of bedding plants are raised there every season, over 140,000 being required, as Southwark Park and the gardens on the Thames Embankment are supplied from Finsbury. The *Chrysanthemums* which have within the past few years become so attractive a feature in this park are making most satisfactory progress, and bid fair to surpass the previous season's displays. About 1500 plants are grown, and their condition at the present time is most encouraging, fine vigorous growth being well matured—better, indeed, than any we have yet seen. The structure assigned to them for exhibition has been improved, the roof being glazed, and all due provision is made for a show of great interest and beauty.

In every department the condition of this park indicates most thoughtful management, and Mr. Cochrane well deserves the many compliments he receives from visitors.

GRAPE GROWING AND SHOWING.

I HAVE a few remarks to make under the above heading. Of late years it seems to have been the fashion to grow and exhibit heavy-shouldered bunches of Grapes, and at exhibitions in the provinces several doubtful cases have come under my notice as to whether the examples have been single bunches or what may be termed twin bunches. At the late Crystal Palace Fruit Show, in the first-prize dish of *Alicantes*, there was in my opinion a most decided case of two bunches on one shoot represented as one bunch; and it was the strongly expressed opinion of some bystanders that the bunches in question should have been disqualified. I am fully aware that we cannot always get bunches to grow so symmetrical as we could wish, but I do think that if the Royal Horticultural and Royal Botanical Societies of London were to take the subject up when framing the next issue of their schedules of prizes, by stating in a footnote that preference would be given to symmetrical bunches, and that any doubtful cases of twin or double bunches would be disqualified, that we should have more creditable displays of Grapes. I am aware that this is a vexed question, and I may be told that the bunches under notice were above suspicion. If so, I can only say they were open to a censuring public, and I feel the matter should not be passed in silence. I have only to add that I was not an exhibitor at the Show referred to, nor have I any interest in those who were.—G. R. A.

LACQUER TREE OF JAPAN.—In a report to the Foreign Office, which has just been issued, our Consul at Hakodadi gives a full and

interesting account of the lacquer industry of Japan. From this it appears that vast plantations of the Lacquer Tree (*Stagmaria verniciflua*) are grown for the express purpose of extracting their sap, which is usually done when the trees have attained the age of ten years. One province alone sends out no fewer than 1500 workmen, whose business it is to tap the trees and collect the sap which exudes from them; and when it is borne in mind that this process is going on all over the mainland, it will at once be seen that the industry is very extensive. Each tree yields sufficient juice to fill a 3-oz. bottle, and each workman during a season of about four months is expected to bleed about one thousand trees, the total yield of sap amounting to between 120,000 and 140,000 gallons. For his services during the season a first-rate workman is paid the munificent sum of £13, though inferior men get considerably less. The wholesale trade is entirely in the hands of two or three large merchants, who dispose of the raw material to the manufacturers. These prepare it in a manner which they keep secret, and contrive to sell it in its manufactured state at the same price which they paid for it, from which the Consul not unnaturally concludes that it has to undergo considerable adulteration before it finally reaches the hands of those who use it in artistic work.

WHAT IS THE MANURIAL VALUE OF PHOSPHATE OF MAGNESIA?

IN my last letter on this subject, page 290, I brought forward certain facts which appeared to me to show that the question of the valuation of different forms of phosphoric acid was in a very unsatisfactory condition; and I concluded that letter by pointing out that, if so slight a degree of solubility as Dr. Voelcker found to be possessed by phosphate of lime in guano was sufficient for all the wants of plants, and if the solubility of precipitated phosphate of lime was so materially increased, as he found it to be, by dilute solutions of ammoniacal salts, we are able better to understand why Jamieson obtained, with finely ground mineral phosphates, the results which have astonished the agricultural world. Ground coprolites are by no means insoluble in distilled water, and must be appreciably more so in solutions of ammoniacal salts or of carbonic acid. I cannot here forbear quoting the opening paragraph from your able review of the Report of the proceedings of the Sussex Association for the Improvement of Agriculture (*Journal of Horticulture*, page 110). "Dogmatism in things scientific is not worth indulging in, for what is accepted as fact to-day is to-morrow shown to be fallacious. A year or two ago phosphates in manures were reckoned as of little or no value, and only acid-treated phosphates were considered of use for plants. The Aberdeenshire experiments, conducted by an able and original chemist, Mr. Thomas Jamieson, dealt the first blow to the old theory—for it never was more than a theory, though universally accepted as proved fact, and acted on as such." Four years since a little work on artificial manures was published by Mr. Alfred Sibson, who was formerly an assistant in Dr. Voelcker's private laboratory, and was subsequently the Assistant Professor of Chemistry in the Royal Agricultural College, Cirencester. At page 91, second edition of the work, he writes: "Nevertheless, as manufacturers do not appear disposed to press their rights on this point [the identification and estimation of precipitated phosphate] some modification of the foregoing scale ('in which precipitated phosphate is reckoned at seven-eighths of the value of soluble phosphate') is necessary to render it generally useful and applicable in those cases in which the precipitated phosphate is not shown, either from the refusal on the part of the analyst to recognise it, or from a simpler and less complete analysis only being desired." Now if the results obtained by Voelcker by acting on precipitated phosphate with distilled water in comparison with those obtained by acting on guano, which Dr. Voelcker considers to be "sufficiently soluble for the wants of plants," are to be relied on we shall not be disposed to quarrel with Sibson's valuation. From guano one gallon of distilled water dissolved 2.52 grains only of phosphate of lime; of precipitated phosphate, whilst the precipitate was still moist, 5.56 grains per gallon; and when the precipitate was burnt and finely ground, 2.20 grains. In practice, precipitated phosphate of commerce, though far more soluble than it would be after burning, would not be as soluble, undoubtedly, as when freshly precipitated; but we might safely assume that it would be considerably more soluble than phosphate of lime in guano.

At page 90 "Artificial Manures" Sibson says that precipitated phosphates are now determined by more chemists than formerly, especially on the continent, yet there is and has been great hostility shown towards its recognition in some quarters for reasons which need not be entered upon here. "At the same time, I should plainly state," he adds, "that I consider it [precipitated phosphate] distinct from soluble phosphate;" and no doubt it is so, for the soluble phosphate in acid superphosphates is undeniably

injurious in soils deficient in lime to neutralise the acid, and in clay soils there is greater chance of loss of phosphoric acid from excessive rains; whilst, on the other hand (see review of the Report on the Sussex proceedings, page 110 *Journal of Horticulture*), one of the ascertained benefits resulting from the use of dissolved phosphate over undissolved is that it gives the plants the advantage of a quicker start where only chemical manures are used;" but "although this is the case, it is shown in the report before us that dissolved phosphate has a tendency to fail towards the end of the season, whilst the undissolved holds on, and in the end gives equal and in some instances superior results."

The results obtained by Jamieson in Scotland led to a controversy between Voelcker and himself, in which, whilst Jamieson argued that crude phosphatic materials finely pulverised were very nearly as valuable as superphosphates for the growth of Swedish Turnips, Voelcker, "viewing the matter from a different standpoint," after quoting numerous experiments made by himself and others, enunciates his opinions in the following eight propositions, which I extract from the *Journal of the Chemical Society*, No. ccxiv., page 640, vols. xxxix. and xl. Amongst these propositions I beg that the reader will particularly take notice of the first, as it alludes to a remarkable fact, the knowledge of which is essential to the comprehension of the rationale of plant food. It appears, strange as it may seem, that the soluble phosphate of our manures (as well as their ammonia, potash, &c.), again becomes insoluble, generally speaking, before being taken up by the plant; and that their activity is dependant upon their thorough diffusion through the soil in this physically fixed condition, as Liebig termed it.

1, Phosphates are not readily taken up by plants in a soluble form, but must be returned to an insoluble condition before they yield their useful properties.

2, The efficacy of calcium phosphate corresponds with the minuteness of division in which it is found in a manure.

3, The finer the particles in a phosphatic material the easier it is dissolved in water, and the more energetic its action in a manure. Coarsely ground coprolites and other minerals are less useful than the same materials in fine powder.

4, Calcium phosphate in porous soft bones is more soluble and energetic than in hard bones, and is more available in bone meal than in crushed bones.

5, Calcium phosphate in crystallised mineral phosphates—Norwegian, Canadian, and Spanish apatites, for example—is less soluble and energetic than the same amount contained in porous phosphatic materials, such as certain descriptions of phosphoguanos.

6, Treatment with acids renders the material completely soluble in water, and the so-formed superphosphate when put into the ground is precipitated in a very fine state of division.

7, In this precipitated state the insoluble phosphate is immeasurably more finely divided than it could be obtained by mechanical means, and is consequently more energetic than any raw material mechanically ground.

8, The author's conclusion is that the chemical treatment with acid is the cheapest and best way of rendering mineral phosphates useful for agricultural purposes.

With these propositions I believe few authorities on the subject will be found to disagree, excepting perhaps with the last. I would, with deference, suggest for Dr. Voelcker's consideration whether to them might not be added with advantage a ninth proposition to the following effect:—"If, after a phosphate has been dissolved by treatment with an acid, the phosphoric acid is precipitated in combination with a base by which the acidity produced may be neutralised, whilst the precipitated salt possesses a sufficient degree of solubility to ensure thorough distribution through the soil, perfect conditions are attained for rendering the phosphoric acid useful in plant nutrition."

"Precipitated phosphate," says Sibson in "Artificial Manures," page 123, "is therefore as valuable as soluble phosphate, except in so far that it has lost the power of spontaneous diffusion possessed by the latter; and this lessens its commercial value, since it is this condition of solubility which it is wished to secure, and for which we chiefly pay in buying superphosphates." It is my contention, I may here state, that in precipitated phosphate of magnesia we have a substance "reduced to a degree of minuteness infinitely surpassing anything obtainable by grinding," accompanied by a degree of solubility such as all agricultural chemists, when they will take the trouble to think about it, must admit to be sufficient for the attainment of perfect diffusion.—INQUIRER.

FLOWERS IN AUTUMN.—Some of our plants are still attractive. We are gathering at this time *Viola odorata* and *The Czar Violet*

from the open ground, reminding us of the spring time. Crocuses are very beautiful in the September sun. A collection ought to be in every border, their lovely flowers repay us for all our care. The Cyclamens, too, with their various-coloured flowers are always admired, and they are so easy to manage I wonder they are not more sought after. *Sedum spectabile* will shortly be in its full beauty, and to be seen to the best advantage must be planted in large masses. *Schizostylis coccinea* is just coming into bloom, in a little time will be very beautiful. *Caltha palustris plena* is flowering freely. *Comtesse Hericart de Thury Strawberry* is in full bloom. Apple and Pear trees are in bloom; many of the spring bedders are also forward. *Triteleia uniflora* is producing its leaves in the open border. *Colchicum autumnale* will soon be in full beauty. The Michaelmas Daisies are fast coming into bloom, and many other old favourites will interest for some time to come; then we shall have the Forget-me-nots and a host of others through the winter.—NORTH YORK.

FRUIT-JUDGING AT EDINBURGH.

YOUR correspondent "H. B." has good grounds for his objections to the adjudication of the prizes in at least one of the classes to which he referred on page 289. I, in company with other gardeners, examined most carefully on the night previous to the Show the collections of twelve dishes of fruit after they were arranged. Every dish was examined and its merits estimated, as much time being spent in this inspection as no doubt was given by the Judges the next morning. The result of this critical examination was an unanimous opinion that either Mr. Austin or Mr. Goodacre would be first, as some of the Hutton Hall fruit was considered unripe or not fit for table, the Pines for instance; while the small dishes, such as Figs, Nectarines, and Apricots, were certainly inferior to any in the other collections. The Grapes were indeed splendid in appearance, but for quality bore no comparison with the others.

Amongst those who acquiesced in the decision arrived at were some first-rate fruit-growers, the representatives of two of the gardening journals, and one of the Judges of the Show. Opinions were about equally divided as to the merits of the Ashton Court and Elvaston collections, but not one individual considered the table quality of the Hutton Hall fruit sufficiently high to secure either first or second honours.

I have not the slightest idea who the Judges were, nor have I any acquaintance with the competitors; but I have a very strong opinion that if the collections had been judged by the Fruit Committee of the Royal Horticultural Society the awards would have been different.

If size regardless of quality is to be thus honoured, exhibitors must cease growing Muscat of Alexandria and Madresfield Court Grapes, even if they can stage handsome bunches weighing 2 to 3 lbs., with large berries excellently finished, perfectly ripe, and of splendid quality, and what owner of a garden would tolerate that?

Had all the Grapes been placed on a dessert table it is certain the Gros Guillaumes and Trebbianos would have been left till the last, and so would both the Pines in the first-prize collection.

Unless "H. B.'s" letter is answered it will be considered unanswerable by the majority of gardeners who visited the Show, and excellence of quality in fruit with good appearance will stand officially condemned. Is this right?—A SCOTCHMAN.

THE GREENHOUSE AND ITS INMATES.

No modern house is complete without its conservatory or greenhouse however small it may be; but although giving in the following notes some hints on the greenhouse and its inmates, we shall devote more attention to the latter than to the house. At one time the village carpenter was the only tradesman to whom anyone could apply, but since glass houses have become so common their erection has become a distinct calling. This has led to the principles on which such houses should be constructed and heated being properly understood; therefore no one need fear to trust any of the numerous hothouse builders, for as a rule they thoroughly understand their work.

We may, however, properly say a word on the situation best suited for greenhouses. This does not seem to be very well understood. The fact that plants must be freely exposed to light, and that they will not otherwise thrive, is in a great number of cases ignored. In winter plants die often from no other cause than that they are too much shaded. Conservatories are frequently placed in positions where they are shaded for the greater part of the day by the house. This should not be done if it can possibly be avoided, for in houses of this kind the highest skill will not produce satisfactory results. Plants in such shady houses grow tall, unsightly, and flowerless in spite of any care taken over them. Sometimes, and more especially in crowded localities, no other positions are available. When this is the case Ferns and other

fine-foliage plants should be largely grown, and only a few of the more floriferous plants chosen for the lightest positions.

There is another point to which we would draw attention, and that is the heating of such houses. There is no doubt but that the most satisfactory as well as the most economical plan ultimately is to use hot-water pipes and boilers. There are very many different kinds of boilers, but we think that none surpasses the ordinary welded saddle for small houses. For larger structures either the welded flued saddle or upright or horizontal tubulars answer well. A flow and return pipe round the house are quite sufficient for an ordinary greenhouse. In the case of very small houses the slow-combustion boilers, which with the necessary piping attached are advertised, suit very well. In the smaller houses, such as we often see attached to the houses of artisans and small shopkeepers, a flue either built with bricks or constructed with earthenware pipes properly jointed to prevent the escape of smoke, suits better than anything else, and costs much less in the first instance than boilers and pipes.

In the use of fire heat, in whatever way applied, some care is necessary. Nothing delights a young beginner more than being able to raise a great heat the first fine still night which looks like frost, and nothing, except the admission of frost, is more injurious. We remember being asked to see a very small house in December, which the owner, a working man, had erected and was attempting to force Hyacinths in. The whole floor was the top of a flue, and the fire was almost directly underneath. The outside registered nearly 20° of frost, and the individual in question had a heat of 75° inside the house, and exulted in the fact that he could, with so little trouble, turn winter into summer!

Now this is just the idea that influences many beginners, greatly to their chagrin, when they find out the destruction which such courses lead to. Growth during the dark days of winter should not be encouraged. Forcing is not the easy process persons having no knowledge of the matter suppose it to be. With suitable plants properly prepared, and in the best appointed houses, it calls forth the skill of practised gardeners to the utmost to secure success; but with ordinary greenhouse plants the best gardener in the world would fail utterly if he had them in houses when the temperature was high enough to keep the plants growing.

This is a very important point, and is the rock on which numbers of beginners founder. During dull cold weather from November to February a temperature of from 45° to 55° is quite sufficient, and a greater heat is dangerous. The lower figure is the more suitable one for the hours of darkness and the higher for daylight. When the sun shines and the weather is fine a few degrees more will do good if there is a little ventilation on, for superfluous moisture will then be dried up, and such occasions should always be taken advantage of for this purpose. Stagnation and dampness should always be guarded against, but especially so during November and December. During the spring and autumn months the temperature should be considerably higher—something like 55° by night and 65° by day. In cold weather the temperature should be allowed to recede, and when it is fine and bright higher day temperatures will do no harm, but good.

Ventilation is a very important point, and a circulation of air should always be maintained except in very cold or very damp weather. In summer shading during the hottest part of the day will prove beneficial. At this time the top and bottom ventilators should be very nearly always open night and day, but of course the discretion of each cultivator should be called upon to know when to ventilate and when to close the ventilators. We advise plenty of air, however. Fire heat will very seldom be necessary when the summer should be excessively cold and wet. In that case a little fire heat during the middle of the day to raise the heat and expel damp may prove of great benefit. Even when fire heat is necessary it is well to ventilate a little at the same time, and not to exceed 65° even at midsummer.—J. H.

(To be continued.)

A PLEA FOR PINKS.

"DON'T follow everyone's advice, but listen to it." So wisely counsels Mr. J. E. Ewing in last year's "Rosarians' Year Book." To my brother amateurs, however, I now give advice which I hope they will not only listen to but act upon. If you have not at least a few Pinks procure them. To your other jewels you will find you have added gems of the first water. Of good habit, exquisite beauty, delicious fragrance, and easy culture—I cannot say too much in their praise. For three months at least, and till yesterday (October 1st), when a storm of wind with occasional blinding showers destroyed almost every flower in the garden, I have had in their continuous profusion of bloom full inducement to cut and come again. With plenty of yet unopened pods, I

look forward to have beautiful flowers from them till frost comes. In fact, if anyone asked me to recommend one flower for his garden I would say, Grow the Pink Modesty.

But be advised to get them now, or as soon as possible. Those obtained in spring have with me made comparatively little growth, and have been some time out of flower, while near are strong bushy plants, miserable enough looking as to bloom this morning after the storm of yesterday, but which by the end of the week will, I expect, like the æsthetics, be "existing beautifully." These, with all my other sorts, are from the collection of Messrs. William Paul and Son, Paisley, and I can specially recommend the first six:—Modesty, John Facer, Lady Isabel, Vanessa, William Murray, William Paul, Clothilde, Corinne, Louisa, Oimara, Premier, and Teaser.—A NORTHERN AMATEUR.

NOTES AND GLEANINGS.

MR. SHIRLEY HIBBERD will give a lecture on PLANT LABELS at the next meeting of the Royal Horticultural Society, October 10th. His object will be to point to a few practical conclusions resulting from the recent competition for the Society of Arts' medal and Mr. G. F. Wilson's money prize.

— GEORGE F. WILSON, Esq., Heatherbank, Weybridge Heath, writes:—"In 'N.'s interesting note on ERYTHRONIUMS (p. 293), under the head *E. grandiflorum*, he speaks of varieties which may be specific forms. We have bloomed *E. giganteum* alongside of *E. grandiflorum*. It is certainly constantly more distinct."

— MESSRS. J. CARTER & CO. send us flowers of PYRETHRUM ULIGINOSUM, which they correctly describe as "one of the finest of autumn white-flowering plants either in pots for conservatory decoration or for affording cut blooms out of doors." In borders the plant is very handsome, attaining a height of 5 or 6 feet, and bearing great numbers of flower-heads with long white outer florets. The suggestion as to its usefulness for the conservatory is worth attention.

— FROM Messrs. Rawlings Brothers of Romford we have received blooms of their NEW DAHLIAS HARRISON WEIR and JOHN HENSHAW, both show varieties of much merit, the last-named having been certificated at South Kensington at the September meeting of the Royal Horticultural Society. Harrison Weir is a fine bloom, very symmetrical and of good substance, bright clear yellow in colour, the lower florets being tinged, spotted, or streaked slightly with crimson. John Henshaw is even more symmetrical and compact than the other, slightly smaller, and of a rich crimson-purple hue—a very distinct and beautiful shade.

— IN reference to the late STORM IN IRELAND, "W. J. M., *Clonmel*," writes:—"One of the most destructive storms—a hurricane—I can remember passed over this locality on Sunday last. The damage must have been enormous. Houses were unroofed, chimney stacks thrown down, and slates sent flying in town, while in the country I saw enormous trees, especially Elm, Ash, and Beech uprooted, and the roads stopped for traffic. We had an immense Elm turned right around and lifted out of the ground without bringing a root with it. As to the vegetable garden, I saw Cabbages and Cauliflowers twisted out of the ground and carried considerable distances. Lastly, as to the flower ground, Dahlias, Hollyhocks, Gladioli, Scabious, Helianthemums, and Roses are spoiled for this season." At the time the storm was raging in Ireland in London the weather was calm and bright—one of the most pleasant days of the year.

— AN American paper states that the PEACH CROP IN TEXAS has been unusually large this year, the largest and best fruits

being sold at 15 cents. per bushel—that is 7½d. English money. It is stated that on one day fifty cartloads of Peaches were disposed of in Boston.

— THE series of articles by Mr. Taylor on THE VINES AT LONGLEAT that have appeared in our columns are now published in the form of a small volume, which we know by the many inquiries we have received will meet with wide acceptance, and especially as the price, 1s., is the reverse of prohibitive. We do not suppose that everything stated by Mr. Taylor will meet with unanimous approval; indeed we know that his work is variously estimated. One correspondent, A, describes it as "needlessly prolix;" another, B, as "much too condensed;" C says it is "most valuable and original;" D suggests the author is a "copyist," and the matter "very commonplace;" while E, and a very good judge he is, observes that "Mr. Taylor seems to have made several mistakes in his practice, but has come right at last." It is in the latter respect—the free recording of mistakes and how the author came "right at last"—that renders the work different from most others, and on that account certainly valuable. We could adduce a column of estimates of the same contradictory nature as those of which we have given examples; but even those who oppose the author's views appear amongst the most anxious to possess the book, which implies there is something in it. Without endorsing all the details of the author's system of Vine culture, we do not hesitate saying that every chapter in the book is worthy of perusal even by the experienced, while young gardeners and amateurs may with great advantage read and read again the notes on "Giving Air," and if they become as competent in this important work as the author is they will in time be ready to admit that this chapter alone is worth much more than the amount they have invested in the book. A gardener who has just returned from Longleat says, "The Vines are in splendid condition, and bear satisfactory testimony to the excellence of Mr. Taylor's practice." It is that practice that is detailed in the neat little volume that is now submitted to the world, and which merits a place by the side of other excellent works on Vine culture that are found in most gardeners' libraries.

— A CORRESPONDENT writes:—"The WEATHER NEAR LIVERPOOL has lately been very fine in the daytime, but usually very wet at night. On Monday the wind was extremely boisterous, and the Chrysanthemums were spinning about the walks like ninepins; they will be placed under glass at once. The plants are fine, but it remains to be seen what effect an unusually wet and cold season will have on the character of the blooms."

— A WRITER in the "Journal of Forestry," describing a FOREST RAMBLE IN FIJI, thus refers to the principal features of the vegetation:—

"Port Ngaloa is a lovely bay, capacious enough to afford anchorage to a fleet, and perfectly land-locked on three sides, whilst on the fourth the envining coral reef acts as a breakwater to the long rollers of the Pacific, whose ceaseless thunder affords a vivid contrast to the perfect calm of the lagoon. This lake-like expanse of light green water is fringed with Cocoa-nut Palms, which throughout Fiji grow luxuriantly wherever the trade wind can reach them, and in the form of copra supply one of the principal articles of export. These Palms actually overhang the broad expanse of sand which fringes the islands, and in many places one sees their graceful fronds dipping into the still waters of the lagoon, whilst the shore is everywhere littered with fallen fruit. In some parts of Viti Levu this Palm does not thrive, owing to the ravages of a small caterpillar which feeds on the leaves, and thus materially weakens the bearing capabilities of the tree. This disease is now being inquired into, the wants of the native population, as well as the pockets of the exporter, demanding that there be no falling-off in the supply of nuts if by any possible means such a calamity can be averted. The verge of the forest is, as a rule, guarded by Palms, their smooth trunks entwined with the tendrils of Convolvuli, whose superb crimson blossoms, often from 3 to 4 inches in diameter, show up vividly against the cool green shade of the undergrowth. Here and there, however, one comes across the Breadfruit Tree (*Artocarpus incisa* or *integrifolia*), a native of the South Sea Islands, and a thoroughly

well-to-do native too, with its spreading branches of dark green glossy foliage and its large Melon-shaped fruit, which is being constantly produced and ripened during nine months of the year. So prolific is the Breadfruit that a single tree will suffice to keep a man supplied with nutritious food for a twelvemonth. Striking up the mountain slope from the shore the wild Banana or Plantain everywhere meets the eye. There are no fewer than twenty-five varieties of the Plantain found in Fiji, and as, according to estimates made, a pound of Bananas contains more nutriment than 3 lbs. of meat, while as a food it is equal if not superior to good wheaten bread, the value of this product to the natives of the South Sea Islands can hardly be over-estimated. In nearly all parts of the forest, but especially in the neighbourhood of the 'koros,' or villages, the graceful light green fronds of the Plantain, with its huge pendant branches of fruit, tell of the rich store of food which Nature provides for the islanders. One of the numerous wild varieties is the *Musa troglodytarum*, the plant from which the Manilla hemp is obtained in the Philippine Islands. The white Plantain, which Mr. Cooper takes to be the *Musa textilis* of botanists, is cultivated in the group, and yields a fine bright and strong Manilla hemp, valued at from £30 to £40 per ton in Sydney; and, when proper machinery has been imported and set up, this export will in all probability be rapidly developed."

— No. 12 of Mr. Auguste Van Geert's "ICONOGRAPHY OF INDIAN AZALEAS" contains coloured plates of *bignoniæflora plena*, a deep rose-coloured double form raised from seed by Mr. C. Schulz, and sent out in 1879; *Königin Cleopatra*, a single or semi-double form, white, striped with carmine and blotched with yellow. This is another of Mr. Schulz's varieties, and is said to be the result of a cross effected with *Rhododendron Edgeworthii*; and Heinrich Heine, also a seedling raised by Mr. Schulz, having large semi-double rich purple flowers.

— A CORRESPONDENT sends us the following relative to PEAS AND COCOA-NUT FIBRE:—"This day, October the 2nd, I have gathered a dish of most delicious Peas—British Queen, sown late in June and mulched well with cocoa-nut fibre obtained from Messrs. Chubb, Round & Co. of Millwall. I use this fibre extensively all over my garden; amongst flowers, fruits, and vegetables, and find it amply repays for the outlay, the fibre acting well both as a mulching material and manure. I still expect a few more dishes of Peas."

— THE *Manchester City News* as the following note:—"A GREAT PLANTER OF TREES.—The Duke of Athole is one of the most extensive tree-planters in the world. There are already vast woods and plantations in Athole and Dunkeld, and as, of course, they exist for use as well as ornament, large numbers of trees have to be planted annually to maintain the woods. Indeed every year the Duke plants from 600,000 to a million trees. During this season a plantation covering 2000 acres has been completed. It may be remembered that the Duke of Athole's plantations were thinned of 80,000 trees by the gale which destroyed the Tay Bridge. When the planter Duke began operations on a large scale in 1774 the Dunkeld Hills were almost bare. During his life the Duke, who may be described as a true benefactor to his country, planted 27,000,000 trees, covering 15,000 acres."

— WE have received Parts 40, 41, 42, and 43 of Messrs. Cassell's "FAMILIAR GARDEN FLOWERS," and Parts 63, 64, 65, and 66 of "FAMILIAR WILD FLOWERS," both of which works are being continued in the same popular but instructive manner that has been previously noted. In the former the plants represented are *Lathyrus latifolius*, *Petunia phœnicea*, *Lilium croceum*, *Rhododendron ponticum*, *Bellis perennis* fl.-pl., *Iris Xiphion*, *Begonia Mont Blanc*, and *Campanula trachelium*. The wild flowers illustrated are *Calluna vulgaris*, *Trifolium procumbens*, *Erica Tetralix*, *Impatiens Noli-me-tangere*, *Bartsia Odontites*, *Meconopsis cambrica*, *Carduus Marianus*, and *Hypericum hirsutum*. Many interesting historical particulars are given concerning some of these plants, and the plates are all fairly accurate.

— REFERRING to the CULTIVATION OF PLANTS IN FERTILISED MOSS, the American "Gardener's Monthly" states that

"Mr. C. J. Power of Framingham, Mass., made a magnificent display at the Massachusetts Horticultural Society's Exhibition in Boston on the 30th of June, of plants grown in the Dumesnil moss. We are not informed in what manner this moss differs from moss prepared by Mr. Peter Henderson, which is simply moss mixed with any fertilising substance. But there are large numbers of people in all large towns and cities who do not care to have the trouble of mixing fertilising substances with moss, or who have not the opportunity of doing so. To all these the ready-prepared moss will be a great boon. It is cleaner and more easily handled; and those who, like Mr. Power, are making efforts to introduce it, by showing practically what can be done with it, deserve the thanks of the community. Henderson's fertilising moss was for mulching only. These plants are grown wholly in the moss."

— WE have received a schedule of the NATIVE GUANO COMPANY'S SHOW to be held at Aylesbury on Thursday, October 19th, for farm and garden produce grown with native guano; and we observe that, in addition to numerous prizes for ordinary farm crops, such as Mangolds, Swedes, Turnips, Cabbage, Wheat, Barley, Oats, and Potatoes, prizes are also offered to market gardeners, gentlemen's gardeners, amateurs, and cottagers for vegetables and Grapes. These prizes range in value from £6 to 2s. Messrs. Sutton & Sons offer a prize of five guineas, Messrs. Carter & Co. offer one of similar value, and Mr. C. L. Perry of Banbury one of two guineas for collections of Mangolds and Swedes. The Hon. W. F. B. Massey Mainwaring also offers a prize of £5 for the best collection of twelve foliage or flowering stove and greenhouse plants; and the Company contribute a second prize of £2.

— THE *Walsall Observer* has the following respecting a MODEL COUNTRY SEAT:—

"Harefield Grove, near Uxbridge, is one of the most remarkable gardens in England. It is the seat of George Webster, Esq., and lies about half-way between Watford and Uxbridge. The park is very extensive and beautifully wooded, and the mansion nestles amongst trees, ornamental water, and surrounding flower gardens and shrubberies. Attached to the house is a spacious handsome conservatory of light construction and elegant in appearance, a model of what such a structure should be. It is, however, of the kitchen and fruit gardens we wish to say a few words. The gardens are very extensive, and are now under the charge of Mr. John Gough, the late able Superintendent of the Crystal Palace Grounds, Sutton Coldfield. Throughout the winter he had a staff of about seventy men to get the place into order, and to assist in forming a new fruit garden, which occupies 13½ acres, on the south side of the kitchen gardens. This ground was a large grass field in October last, and within three months it was converted into a spacious and well-arranged fruit-growing garden of the extent we have named. Broad grass walks, along which there is ample room for driving, have been formed. In this new garden five thousand pyramidal Apple, Pear, and Plum trees, twenty-five thousand Gooseberry and Currant trees, and five thousand Filberts have been planted, and the whole of these trees were procured from the nurseries of Messrs. Richard Smith & Co. of Worcester. Passing from this garden underneath rustic arches or over a rustic bridge, the kitchen garden is entered, and here there is a town of glass. There are thirty-seven glass structures, eleven of which are vineries, some of great length, one new range being amongst the finest in the country. There are three long low span-roofed Cucumber houses, with beds on either side, each house 110 feet long, and with strong healthy fruit-bearing plants about 2½ feet apart, the foliage being most remarkable in size, substance, and health. Running parallel with the Cucumber houses is a Melon house, 110 feet long, planted on both sides, and the plants are in fine health. One of the Peach houses has a curvilinear roof, is 112 feet long and 22 feet wide. Long houses over 100 feet in length are devoted to Tomatoes, of which excellent vegetable there are nine hundred plants now growing. In addition to the vineries existing at Harefield Grove previous to Mr. Gough taking charge other spacious new vineries have been built, necessitating the planting of 180 strong young Vines, and this has been done since the 1st of March last, and they are doing well. In other houses are seven hundred fruit trees in pots, such as Peaches, Nectarines, Figs, Cherries, Plums, Pears, &c.; so that some idea of the magnitude of the fruit-growing operations here may be formed. Then, in addition to these houses there are others devoted to Orchids, one large house to Gardenias only, whilst others are filled with Ferns, stove plants, and a fine collection of other plants. The culture of forced French Beans is a great item here, row after row the whole length of the

houses being planted, and these have been in use since February last; many of them now are pulled up, the crops having been gathered, and are cleared away. Mushroom-growing is also practised on a large scale here."

— A SMALL HERBARIUM OF PLANTS THIRTY-FIVE CENTURIES OLD must be an object of considerable interest. Such a one has recently been formed by Dr. Schweinfurth from garlands found on the breasts of mummies discovered last year at Deir el Bahari by MM. Brugsch and Maspero. Two garlands on the body of the King Aames I. consisted (according to a letter of the Doctor's published in "Archives des Sciences") of leaves of Egyptian Willow (*Salix safsaf*), folded twice, and sewed side by side along a branch of the Date Palm, so forming clasps for separate flowers inserted in the folds. The flowers were those of *Acacia nilotica*, of *Nymphæa cærulea*, with isolated petals of *Alcea ficifolia*, and of a *Delphinium* believed to be orientale. The garlands of the other kings contained flowers of *Carthamus tinctorius*, and the folded leaves were those of *Mimusops Kummel*. Leaves of the common Water Melon (*Cucumis citrullus*) were also found on the body of Neb-Seni, a high priest of the twentieth dynasty. Dr. Schweinfurth managed to preserve many of the leaves and flowers by moistening them, then putting in alcohol, then spreading out and drying. A remarkable thing is the preservation of colour of the chlorophyll, violet in *Delphinium*, green in the Water Melon leaves. All the species named are still found in the East; and they afford examples of both spontaneous and cultivated plants continuing for many centuries without variation.—(*Nature*.)

— IN regard to giving LIQUID MANURE TO ORCHIDS a correspondent of the "Gardener" writes as follows:—

"The question of whether liquid manure is beneficial or injurious to Orchids is far from settled; but my own plan is to give pure rain water to all Orchids which have permanent or long-lived roots. Those Orchids which produce annual roots only—such as deciduous *Calanthes*, *Pleiones*, and *Phajus*—may not be injured, indeed I am quite sure *Calanthes* are benefited by liquid manure waterings; and I am equally confident that *Vandas*, *Cattleyas*, and many other Orchids of a similar habit, have been much injured by its application to their roots. Only the other day I saw a plant of *Vanda Batemanii* 4 feet high, and once the picture of health, spotted and disfigured by a dose of liquid manure having been given to it by a man who was deputed to water some *Gardenias* in a stove wherein it grew. When we think of the splendid specimens of Orchids which a judicious use of pure water has sufficed to produce, the wonder is that anyone can be found willing to risk valuable plants by making experiments of this kind. I even question whether throwing an occasional can of weak liquid manure on the flooring or stages of the Orchid house is productive of any permanent good, albeit that a deeper tint of verdure may thus be gained. Mere greenness in Orchids, however, is no sure test of healthy long life or of free flowering, and I earnestly advise all who grow Orchids to pause ere they even think of giving liquid manure to valuable Orchids."

RENOVATING OLD VINES.

MANY gardeners think that the best thing to do with old Vines is to throw them out. It may be in some instances; but in most cases good results may be obtained by renovating them. In many gardens young Vines are planted, cropped heavily for a few years, the border becomes exhausted through inattention, the Grapes degenerate in size of bunch, berry, and colour, also shank; but if better attention had been paid to the Vines and borders the result would have been different.

Most vineries have the borders both inside and out, and when it is the case good Grapes can be obtained from the same Vines for many years—indeed, during a lifetime, by judicious cropping, timely attention to the borders, lifting the roots, and relaying them in good fresh soil every six or seven years. It is not well to lift the roots both inside and out at the same time. The safe plan is to do one portion one year and the other two or three years afterwards; the Vines will not then feel the check in the least, but continue year after year producing good Grapes. Generally when Grapes are a bad colour and shank the roots are in exhausted soil or the Vines too heavily cropped. Artificial manure in such a case is not like good fresh loam, which is the best remedy in the case of exhausted borders. Some may say that they have old Vines that do well and bear good Grapes annually that never have the roots disturbed or the border touched. In such a case the feeding

roots are not in the original border, but have rambled outside into better quarters. In some places where there are several vineries, removing old Vines and planting young is a matter of little consequence, as the supply would not be diminished, but where there are only two or three houses and a good supply of fruit is required it is a different matter.

Having had some experience in renovating old Vines that were pronounced worn-out I will state how I managed it with very fair results. The Vines are, I believe, between fifty and sixty years of age. The time they were lifted was from this period of the year onwards, as there were three or four vineries to do. The first thing I had done was to get some turf cut and have plenty of wood ashes and lime rubbish ready. The Vine borders were both inside and out, so I kept the inside border well supplied with moisture. To keep the roots fresh and active each border was done as the Grapes were cut. Where the roots were outside we did not know, so a trench was dug 6 feet from the front wall of the vinery, and a few black-looking roots were found among the drainage. We worked the old soil away, placed about 18 inches of brick rubble for drainage, and relaid the roots near the surface (which had been protected as well as possible during the operation by damp mats) in the fresh soil, notching them at intervals of 1 foot, and covering the borders with dry litter to keep all comfortable for the winter. The house was kept close, and the Vines syriuged two or three times a day for a week or two. After they were lifted the vinery was afterwards well ventilated, a little fire heat being afforded to ripen the wood. After the leaves had fallen the roots were examined, and in all cases the cut parts were callused over. In some new roots were being emitted. Whilst the roots were being lifted the weather was dull, or we should have had to shade the roof, as there were not many roots inside to support the Vines. It is by far the best plan to lift the Vines whilst the foliage is on them; but good results may be obtained after they have fallen, as long as the work is done as soon after the fall of the leaf as possible.

The early Vines were started in February, as a good crop of Grapes was expected the same year. They grew gently in a temperature about 55° at night, so as not to exhaust the stored-up sap. After the shoots had grown about 12 inches, and I could see by the appearance of the leaves that new roots were starting, a little more heat was employed. The shoots were not stopped until they had grown four or five leaves beyond the fruit, and those at the top of the Vines were left to ramble to keep up root-action. That season the berries swelled twice the size they had previously been, and coloured fairly well, although they had been regarded as a distinct variety—Red Hamburgs. During the past two seasons they have been quite black, and are good Grapes for old Vines. The Muscats are a better success than the Hamburgs, the bunches being of large size, and the berries very fine.—A. YOUNG.

PLEIONES.

OUR *Pleiones* are flowering rather early this year, although the treatment they have had has differed in no way from that usually given except in the time of potting. It is usual to repot these plants directly the flowers have faded, so that the shift shall not interfere with the growth which follows immediately after the flowers, nor injure the roots, which are pushed almost at the same time as the flowers. Thinking last year that by repotting the bulbs before the flowers had developed I should avoid breaking young roots, which almost unavoidably takes place if the potting is deferred until the flowers are past, I shook out the greater part of our pseudo-bulbs after they were ripened, and repotted them in the usual compost. I was careful that neither more water nor heat should be given than they would have under the ordinary method; yet in spite of this the flowers never expanded, although some of the buds grew to a good size, all fading, and the growth pushing at once. Of course, it is possible that the treatment was at fault; but as far as I could make out the early shifting alone was the cause of the flowers failing, and in future I shall wait until the flowers have disappeared before I repot *Pleiones*.

One species, *P. Hookeriana*, has not done well with me this year. It is a small, round, smooth pseudo-bulbed species, bearing beautiful little flowers, which last for at least a fortnight. A characteristic feature of this species is the appearance of the leaves with the flowers. It is a cool species, and last year succeeded very well on a block with sphagnum moss and suspended near the roof in a cool house. Another cool species and very pretty one is *P. humilis*, which has smooth bottle-shaped pseudo-bulbs about the size of Damsons. *P. lagenaria*, *P. Wallichiana*, and *P. maculata* are the best known kinds, all easily managed, and very free-flowering. We grow them in a warm stove on a shelf through the summer,

placing them in a light airy greenhouse in the autumn to ripen their growth. Abundance of water, with a little weak liquid manure occasionally, should be given during the growing season, and a good syringing at least twice a day keeps them clean and assists their growth. As the leaves fade the syringing should be discontinued, and less water at the root should be given, withholding it altogether when all the leaves have faded. As the flowers advance a little water may be given, but not much, or the roots will get too long to make the potting operation easy and safe. *P. lagenaria* is so easily grown and requires so little heat that anyone possessing a greenhouse may venture to grow it. Few Orchids are more pleasing than these pretty little plants—Indian Crocuses as they are called—and they come in at a time when Orchid flowers are rather scarce. In the Himalayas, where these plants are found, they must form beautiful pictures; clothing, as I am told they do, old tree trunks, rocks, with a perfect carpet of pink and white.—K.

SOILS FOR POTTING.

MUCH of the success attending the cultivation of plants in pots depends on the soils at the cultivator's command. This is, therefore, a point demanding attention and much knowledge, which can only be gained by experience and partially from written or printed instructions. The two chief articles needed are loam and peat.

Loam.—The best kind of loam is that made from turf taken from an old pasture, and cut 3 or 4 inches deep, or as deep as the fibres or the grasses hold the soil firmly. But some pastures—good old ones, too—are on very heavy clay, and others are on gravel or sheer sand. Either of these are better than nothing, but neither make the best kind of loam for most purposes. True, some plants, such as Lilies among flowers, and Melons among fruits, delight in heavy loam, while very sandy loam, pure and simple—which is generally all fibre, as the loose soil shakes out easily—is just what *Lapagerias* and some other plants delight in. Nevertheless, loam from a fertile soil of a medium texture is best. At the same time very few people, even among those who live in the country, have a choice of soils. If only heavy loam can be obtained it should be cut and stacked (under cover if possible), with layers of horse droppings and charred refuse sandwich fashion between the layers of turf. The manure will enrich, and when chopped up and mixed with it tend to lighten the loam. At potting time leaf soil may be added with advantage for many plants, and also sharp sand. These will further lighten it. For other plants, and especially such as are in large pots, pieces of freestone, charcoal, or even tough peat, will further tend to improve such soils.

This lightening and mixing process must not be overdone, though. Very light loam should be stacked in the same way, but cowdung should be placed with the turves instead of horse droppings. The charred refuse should also be kept out, and a little heavy soil be added instead. In chopping it up for potting any light loose soil should be shaken out, and mixing sand with it may be altogether unnecessary. When it is used for plants in large pots large pieces of the turf should be used, and firmly packed into the space between the roots and sides of the pots. Leaf soil may be quite unnecessary, and the decayed cowdung sufficient for enriching it. Instead of lumps of porous charcoal and sandstone we would (and do) substitute lumps of fresh bone.

By such process, and the different employment of different materials, very dissimilar soils may be made to answer the same purpose. Medium loam requires nothing more than stacking with a little manure of some kind, and any admixture required by the different plants to which it is to be applied.

For loam we have often used partially decayed "rack" (quick grass roots) from off fields; and for small plants in small pots, or for rapidly growing annuals, such as Balsams, Cinerarias, and similar plants, it is very good, especially if mixed for some time before using with horse droppings or such like, and a little bone meal when put into the pots. For large plants of *Lapagerias*, Oranges, Vallotas, Lilies, and Camellias, we always endeavour to secure proper turfy loam, as such loam as rack makes soon become earth, and is then apt to get too solid and sour, in which state nothing can thrive in it.

Peat.—It is not every district that possesses good peat for plant-growing purposes. Moreover, different plants require different kinds of peat. Ferns delight in that spongy kind which is only decaying mosses and other kinds of vegetation. Heaths, Azaleas, and similar plants demand peat from the surface of dry ground, and it is much better if it is full of grassy fibres and is dashed with sharp sand. It is only rarely that such is the case, however, and the sand has to be supplied by the cultivator. The peat should be cut in turves like the loam, and stacked in the

same way, but without manure. Both loam and peat should be stacked some months before they are required for use.

Leaf Soil.—This is simply leaves which have been laid in a heap until they have decayed. It is best when it is just decayed enough to pass through a sieve and remain in a flaky condition.

Decayed Manure should be made similarly, and used in the same way, but we very much prefer applying any manure required for pot plants in a fresh state among the soil at stacking time in the way described. Placing manure in heaps dissipates its best properties, which are washed out by the rains or escape into the air. When placed in the soil in a fresh state the latter absorbs it, and is benefited and enriched.

Charred Refuse is the remains of any fires which may be made annually for the sake of getting rid of prunings, old Pea and other sticks, Cabbage stumps, &c. It is very valuable on the potting bench; and to make as large a heap as possible any earth which adheres to the roots should be charred, especially if the soil is clayey, along with the other materials.

Sand.—Everybody knows what sand is, but it may be necessary to state here that close adhesive sands are of no use for mixing with potting soils, as sand is only used to make the soils with which it is mixed more porous. Pure white sharp sand (silver sand) is best, but clean sharp river or other washed sand is good, no matter what colour it may be. Pit sand often contains much iron, and is then worse than useless.

Bones.—Quarter-inch bones and bonemeal when judiciously mixed with soils at potting time are of very great value to all plants which love to grow in loam. Ordinary manure, well decayed, soon loses much of its nutritive value, because it decays rapidly, and the repeated waterings, which are necessary for plants in pots, rapidly wash its nutritive substance out of the pots and beyond the reach of the roots. Bones, on the other hand, decay and give out their feeding substances slowly, and last until the plants want nourishment most—after the pots are full of roots. After this happens the roots literally absorb the substance of the bones, and so find sustenance, when, without their presence the plants would likely be on short commons. When a little bonemeal is added to the soil at potting time we find that the plants thrive for a long time in comparatively small pots, especially if a very little sulphate of ammonia is dissolved in the water which is given them. When no bones are in the soil we find that guano water or liquid manure made from animal dung is necessary to produce equal results. In numberless instances liquid manure with an offensive smell is not tolerated, and an odourless stimulant, such as a weak solution of sulphate of ammonia, becomes necessary if the very best results are expected.—N. B.

POTTS' SEEDLING APPLE.

I HAVE always considered Potts' Seedling Apple a most valuable variety. The fruit is clean, large, and excellent for either baking, boiling, or exhibition purposes. The tree is a very good grower, with splendid foliage and very distinct, which makes it the more prizeable. I used to exhibit a good deal at the various shows, and nearly always carried off first prize with Potts' Seedling, although I had Lord Suffield quite as large at the time. I cannot say with strict accuracy where nor by whom it was originated, excepting that when I used to go down into Lancashire collecting new Gooseberries, &c., I came across it at Oldham in the garden of a small cottier, a Gooseberry grower, who had two small young trees of it; and he stated that he had just procured these from a Mr. Potts, who had raised it. I presume he was a neighbour, but do not know for a certainty. I think it is about thirty years ago, as near as I can remember. After hearing such a glowing description of the Apple by the individual named I was very anxious to procure the sort, which I did, and have every reason to think it one of the best kinds in cultivation. If anything that I have said will be of any service I shall be very pleased.—JOHN NELSON, *Nurseryman, Catcliffe, Rotherham.*

[We have received very fine fruits of this Apple from Riverdale near Sheffield, and it appears to be admirably adapted for exposed localities and northern districts.]

BOMAREAS.

CLIMBING *Alstromerias* would not be an inappropriate title for Bomareas, for they are very closely allied to those plants, differing from them simply in habit and in the form of the seed pod, which is triangular. So nearly, indeed, are the two genera related that many of what are now known as Bomareas were at one time classed with the *Alstromerias*; but the formation of a separate genus was necessary and judicious when the number of species

described was largely increased by every traveller in the northern parts of South America. As to the extent of the genus, some idea may be gathered from the fact that in Kunth's "Enumeratio Plantarum," published in 1850, no less than sixty-one species, besides many varieties, are described, and since then several new forms have been discovered and introduced to cultivation. It should, however, be remarked that few of the total given above are at the present time grown in England, and it is only in quite recent years that some of the most handsome have been obtained, such as *B. conferta*, and these are still confined to comparatively few establishments. At Kew a good representative collection has been grown for some time, and the beauty of the plants has often attracted the attention of horticulturists, to whom they were comparatively unknown, as few nurserymen seem to have duly appreciated the beauty of the genus, and thus they have not been

brought so prominently before the attention of the public as many other less useful plants. That they are useful no one can question who has any experience of their attractiveness as greenhouse climbers, and of the ease with which they may be had in satisfactory condition.

Either in pots or planted out they are equally beautiful, but the latter method is preferable where it can be practised, as the fresh green foliage is pleasing even when the plants are not in flower, and when they are bearing abundant handsome trusses of showy flowers they are scarcely rivalled by any cool-house climbers. There is little difficulty in providing a soil to suit them. A compost of loam and peat, or good fibrous loam alone, with a small proportion of sand, will meet their requirements, provided the pots or position in which they are to be planted are thoroughly drained. Liberal supplies of water and occasional assistance with liquid



Fig. 54.—*BOMAREA OLIGANTHA*.

manure will produce a vigorous growth, which, if the shoots be trained in a sunny portion of the roof, will mature and flower as freely as can be desired. It is surprising how rapidly some of the stronger-growing sorts, such as *B. Carderi* and *B. conferta* advance; and this sometimes is an evil rather than not, for when they become excessively vigorous flowers are seldom produced. An instance of this kind may be now noticed at Kew, where the latter of the two species just mentioned is thriving as prosperously as could be desired, but at present it gives no sign of blooms, though elsewhere the same species flowers without any trouble. Proper measures have, however, been adopted to restrain its luxuriance, and no doubt this attention will soon yield better success.

As one of the oldest introductions, though not for its beauty, the first deserving notice is the *Bomarea edulis* of Herbert, which is the *Alstromeria Salsilla*, figured in an early number of the "Botanical Magazine." This has small flowers borne in threes or fours, the outer segments rose and white, the inner green spotted with reddish brown. It has not the remotest pretensions to beauty, but is interesting for the fact that its tuberous roots

are edible, and are said to have been at one time used in St. Domingo like Potatoes are here under the name of "Tapinambours blancs." The plant was also designated *B. Salsilla* by the Spanish colonists from its resemblance to Sarsaparilla, while some record that it bears the name of "Coyolxochite," which will no doubt recommend itself to the attention of those who are so partial to native names. The plant designated *B. Salsilla* by Herbert—who, it should be observed, is our principal authority on these plants—is totally different from the above, being more slender and graceful, with small rosy-purple flowers produced in umbels of six or more each. *B. Salsilla* var. *obtusata*, *Herb.*, is the *Alstromeria oculata* of the "Botanical Magazine," a really pretty form, with rosy flowers blotched with black in the centre of the tubes.

Turning to more recently introduced species, we have two charming forms in *B. Caldasiana* and *B. oligantha* (fig. 54), which in some degree resemble each other, both possessing much beauty to recommend them to the attention of cultivators. The first-named has the exterior segments of the perianth red, the inner orange-yellow spotted with a darker shade, the flowers being numerous in moderately compact trusses, the peduncles being

1½ inch or 2 inches long. *B. oligantha* has closer umbels and shorter peduncles, the colour being orange-red spotted with brown. Both are of moderate growth, free-flowering, and extremely graceful trained to the roof of a greenhouse or conservatory, the trusses of brightly coloured flowers showing to much better advantage when pendulous above a path, as the markings of the tubes can then be seen.

Two of the larger-growing species may be similarly compared—namely, *B. Carderi* and *B. conferta*. The former was introduced about six years ago by Mr. W. Bull, having been discovered by Mr. Carder, who was then travelling in South America collecting plants. It was also, I believe, introduced to Kew about the same period, but was grown under the name of *B. Jacquesiana* for some time, before it was identified as the same as Mr. Bull's. It has flowers between 2 and 3 inches long, of a pleasing rosy tint, spotted near the points with brownish purple. They are borne in large trusses of thirty or more, and the fruit when ripe is of a fine rich yellow colour. *B. conferta*, though long known to botanists, has been only recently introduced by Messrs. Shuttleworth, Carder & Co. of Clapham Park, who have already added several beautiful forms of this genus to those previously in cultivation. It has large trusses like *B. Carderi*, the blooms being of a clear bright rosy crimson hue. Both are of strong growth, as already noted, and are especially suitable where there is a large space of roof to be covered.

Other forms introduced by this firm, which I have not yet seen, are *B. vitellina* and *B. Shuttleworthi*, both said to be attractive in no ordinary degree. Several older species not referred to in the above notes, such as *B. acutifolia*, are well worth attention, but those named would form a good representative collection.—L. CASTLE.

"WOMEN FLORISTS."

In an article bearing the above title, "Vick's American Magazine" gives the following:—

"There is now a lady florist in Quincy, Mass., who, to indulge her own love of flowers and improve her health, built a small green house, and took the care of it and a garden beside. People wanted to buy flowers, and the business grew upon her hands, till now she has four forcing houses, a Fern house, and large garden crowded with flowers, herbs, and splendid fruit. She has three young women in training, who find it easy to do all the work of the place, the only other help being a boy in the busy season. The sight of Mrs. Packard's dwarf Cactus and leaf plants, her thicket of Roses and screens of Ivy, her Pears and Lawton Blackberries, and the Fern house draped with clouds of greenery, would lead any unoccupied woman to resolve to devote herself to floriculture.

"That gardening pays everywhere was shown by the success of a German woman, out on a newly settled prairie in Wisconsin, some twenty years ago. Her husband, a nursery gardener, was struck with paralysis, when his stout-hearted wife took up the business, and made it support them well for years. In a neighbourhood twenty miles from market, and where houses were a mile apart, she raised all the seeds and plants in demand, all the Onion and Cabbage seed, Cabbage and Tomato plants, Pie Plant and Horse-radish roots, Currant and Blackberry sets, and Strawberries. People stocking new gardens for fifteen miles around went to Christina Johnson for these things, and while they were about it were often tempted to add a Flowering Currant and Prairie Rose, a Pæony root and Snowball for the door yard.

"Every established florist knows of modest ventures made by women which advanced to gratifying success. I can recall more than one in a small way, like the two old maid sisters who kept a greenhouse built from the sitting-room of the old homestead, which added to their slender income for years, and the quarter-acre of Amaranths, which brought in most of an old woman's spending money, to keep her in the long winter. The 'Fern farm' in Connecticut, which supplies the trade in the region, is largely known to enthusiastic cultivators; and there were the two friends, one a school teacher, the other a needle-woman, who went to Michigan and made themselves a home and an independence, with a capital of 300 dollars, off a fruit farm, worked, all save the ploughing and harrowing, by their own hands."

ALPINE FAVOURITES.

Linaria pallida is frequently called *L. Cymbalaria major*, although I do not see the reason for such a name, for it is certainly very distinct from that species. In my opinion it is much nearer *L. hepaticæfolia* and *L. pilosa*. It is a very pretty plant, creeping beneath the surface, and it is very apt to crop up where it is unwelcome; but for all that it is really an alpine gem. Very dwarf

in habit, with crowds of purple and white flowers twice the size of those of any of the above-named species, extending over several months of the year—in fact I have known it in flower this year from May until September. If it is planted on the rockery, which most certainly is the proper place for it, select a dry position, when it is not so likely to spread so rapidly. In a mass it is a charming little plant.

Linaria Anticaria is one of the more erect-growing species, or sub-trailing, with stems 6 to 9 inches high, covered with narrow glaucous leaves and terminal racemes of white flowers marked with two bars of deep purple. Sometimes the bars are absent, but the flowers are very much prettier when they are present. This species I obtained in the first instance from Froebel and Co. of Zurich, and now it exists in several gardens. I am rather doubtful as to the correctness of its name; but it is a pretty alpine, flowering very freely, and is quite hardy and perennial, although I have seen it noticed in a contemporary as an annual. It is easily increased by dividing the roots, or raised from seed, which it produces freely.

Arnebia echinoides is an extremely interesting Boragewort, quite hardy and perennial, with large lanceolate leaves. It flowers early in the year—during April and May, and again in August and September. The flowers are produced in racemose cymes on stems about 9 to 12 inches high, sometimes higher, according to the position it occupies, of a bright primrose yellow, with brownish-purple spots when first expanded, but which gradually die out, and on the third day after the flowers are open they are scarcely visible, so that the heads present a very peculiar appearance with flowers quite clear of spots, and others with them in varying degree; and as it is particularly free-flowering it is a very showy plant. It does well in a warm border, but most cultivators will find a place for it on the rockery, where it flourishes extremely well. I have not raised it from seed, although Mr. Max Leichtlin of Baden-Baden has, seed ripening freely with him; and I learn from three sources of seed having been saved in this country this season. Side shoots will strike if taken off with a good heel and placed in a cold frame, although rather slow in doing so, yet if treated carefully they are sure to root. It is a plant which will be much more frequently seen when better known.

Campanula Allionii.—This is certainly one of the prettiest of the Bellworts, very dwarf, with small rosettes of foliage, from which spring the large solitary blue flowers, nearly equal in size to a Canterbury Bell. These are freely produced when the plant is thoroughly established, and a most handsome little carpeting it makes. It seems rather capricious, for I have heard of many failures with it, though I have had no difficulty with it. If it grew with everybody as with Mr. Ewbank of Ryde it would find a place in the garden of all alpine fanciers, for it thrives admirably in the rich rather heavy loam in which it is planted, and in which it delights. A cool, moist, and rich loam is the soil it requires to establish itself, and in which it gives satisfaction.

C. Raineri is a scarce and very pretty species, but very frequently misnamed, *C. turbinata* and its varieties being often supplied to purchasers as the true form, from which, however, it is quite distinct. It is much dwarfer in habit, very woolly, and the flowers are more bell-shaped, being deeper, on short foliaceous stems, whereas the flower-stems of the *C. turbinata* section are all but naked. The flowers are pale sky blue, and very large for such a diminutive plant. It delights in rich gritty loam and leaf soil, in a sunny position. At the foot of the rockery I have known it to do well. Slugs are extremely fond of it, leaving other species untouched near it, and they will clear it quite away if not disturbed.

C. Tenorii has slender trailing stems, with racemes of more or less contracted blue flowers, pendulous in disposition; it is extremely pretty and well suited for drooping over a ledge on the rockery. Easily raised from seed.

Neja gracilis, although not quite hardy, is nevertheless well worth the trouble of keeping in a frame or cool greenhouse, as it is very showy for the rockery and warm borders during the summer, blooming for a very long time. The leaves are very narrow and deep green, and the bright yellow capitula are produced upon slender stems, and about an inch across, copiously produced. It is most easily grown, and cuttings striking freely any time of the year; a store pot kept through the winter in a house would be quite sufficient to make a good show in the following summer if they were potted off early in spring, and planted out in April or May. It is very striking, and certainly well worth growing.

Potentilla dubia is a comparatively rare species, although a very free grower, for when once planted it always maintains its position, forming neat masses, of dwarf habit, and when such are a desideratum it is well worth having, as it is very bright and lasts for some months in bloom. The flowers are bright yellow, round, and

rather larger than a sixpenny piece, while the foliage is deep green. It is most easily increased by division.

P. nitida alba is a very scarce and pretty variety, with deep green shining foliage and pure white flowers, nearly as large as a shilling. The plant is tufted in growth, and not nearly so free as the last—in fact it is really a slow grower, but very distinct and showy. I had it from Froebel & Co., and am quite pleased with it, after having been frequently disappointed with *Potentillas*.

Edraianthus dalmaticus.—This is a charming Bellwort, growing in close rosettes, with slender leaves and axillary racemes of light blue flowers freely produced. It is very easily grown; some chippings of limestone should be mixed with the soil in which it is planted, and I have found it do well in a sunny position. It has a tendency to throw up a terminal flower-stem, and this frequently ends its existence if allowed to develop. I always pinch it out, and thus lengthen the life of the plant. It is easily raised from seed, but the roots cannot be divided, and, as far as I know, cuttings will not strike.

E. serpyllifolius—another species—is a lovely little gem, producing solitary deep bluish-purple bell-shaped flowers. It is also a much smaller plant, with very narrow leaves. It may be divided if planted in very sandy soil, and I have also rooted cuttings taken from it on more than one occasion. It also enjoys a sunny position in rich loam, leaf soil, and sand.—ALPINA.

THE CHEMISTRY OF MANURES.

In a correspondence extending over several weeks there is danger of losing sight of the precise questions originally raised unless attention is now and then recalled to them. Permit me, therefore, to remind you that in my first letter on earth-closet manure (pages 120-121, *Journal of Horticulture*) I expressed my belief that "Dr. Voelcker's opinion of the trifling value of earth-closet manure was substantially correct." As "J. B. K." (at page 218) acknowledges his acquiescence in "the real value of the manurial value of the addition to a ton of soil" being 2s. instead of the price of £1 usually charged for it, we appear to think alike so far; but I went on to ask whether "a better system of manuring than by earth-closet manure" (supplemented by a little wood ashes, occasionally a few half-inch bones, and also a little of Standen's manure) "may not be employed for Vine borders?" and "J. B. K." apparently does not concur in this. He thinks that my inquiry, or suggestion, was unnecessary, and, I may add, misleading. He also says that the first of the questions (which, however, he is good enough to reply to) asked in my letter (p. 244) "hardly expresses any practical question arising out of the discussion." I accept this dictum "without prejudice," as the lawyers say, and return to the real question of difference between us, or what I conceive to be such.

In "J. B. K.'s" last very interesting letter on the chemistry of manures he gives a tabular statement showing the rate of application per acre of the three important fertilisers—nitrogen, phosphoric acid, and potash—which follows from Mr. Taylor's recommendation. I accept this statement as correct, for it evidently has not been put forward without careful calculation. Again, in his first letter (p. 218) he informs you that the principal manurial ingredients in the Longleat recipe are equivalent to an application to the soil of 14 cwt. of sulphate of ammonia, $4\frac{1}{2}$ cwt. of bone meal, and 10 cwt. of muriate of potash per acre. Lastly Ville, whose authority ought to carry great weight on a point of Vine culture (though he makes an error, as I believe, in his omission of magnesia from his formula), supplies us with the quantities which he recommends as the best for this object—viz., 528 lbs. of calcic superphosphate, 440 lbs. of potassic nitrate, and 352 lbs. of calcic sulphate per acre.

Comparing the amounts of nitrogen, phosphoric acid, and potash which would be used in the above three cases per acre, I find them to be as follows:—

	1. The Longleat application, calculated by "J. B. K." to supply to the soil (see p. 298)	2. Longleat application, supposed by "J. B. K." to equal (see p. 218)	3. Ville's formula for a manure for Vines.
Nitrogen	256 lbs.	say 310 lbs.	57 lbs.
Phosphoric acid ..	120 "	" 130 "	79 "
Potash	60 "	" 560 "	193 "

It will be observed that the supposed Longleat application (2) does not differ very excessively from Ville's formula (3) in the relative proportions of phosphoric acid and potash; but what shall we say of the proportion of potash in the soil (1) calculated by "J. B. K." to result from the manure used and recommended by Mr. Taylor? Can it be said to supply in requisite proportion the universally acknowledged dominant manurial constituent for Vine cultivation? I may, perhaps, be told that "the small quantity of wood ashes" which Mr. Taylor uses supplies the potash; and if

so I have nothing more to say, excepting to apologise to that good gardener for again introducing his name into the discussion, and to express the hope that he will at least try a manure at Longleat very much richer in potash than that which he has hitherto used. If hereafter he is enabled to inform your readers that he has gained nothing by the change I shall regret having suggested what has turned out of no advantage; but my *amour propre* will be untouched, as my suggestions were derived from recorded and authoritative observations, and not from my own experiments; and Mr. Taylor will have the satisfaction of proving to others that it can no longer be said of his "high estimate of the value of earth-closet manure" that it "does not rest on any solid foundation."—INQUIRER.

HARDY PLANTS—A DELIGHTFUL GARDEN.

MANY who have no convenience to grow the ordinary tender bedding plants to render gardens attractive during the summer months, may keep them gay and delightful for a long time with hardy plants. Although the latter never produce such a blaze of colour as the former, yet they possess an interest, beauty, and fragrance that ordinary summer bedding plants do not. Hardy plants are also preferable for cutting, and flowers for the decoration of the dinner table and rooms are always in request. They possess another great advantage over *Pelargoniums* and *Calceolarias* by not being rendered unsightly for any length of time by a few heavy showers, but soon brighten up, and are as beautiful as ever.

To render gardens gay and delightful for a long time selection is of great importance, and it is preferable to employ a few good plants in quantity than to aim at having a collection. A collection is interesting to the botanist, but to cram as many different kinds as possible into a given space for the mere sake of having them, is a great mistake where beauty and effect are the objects to be attained. Only a few kinds of hardy plants are necessary to keep a garden gay; these should be grown in quantity, and when once obtained may be kept and propagated without either cold frames or glass houses. This is important to many; at the same time it must be admitted that many hardy plants can be increased more quickly with the aid of frames and handlights than without them.

I have seen in many parts of the country gardens entirely devoted to hardy plants, but the most satisfactory that has come under my notice has been pronounced by all who have inspected it as the most "delightful" little garden they have seen during the season. The whole garden devoted to flowers is not more than 30 yards in length, and is protected with a bank of shrubs at the north end, the west side being also moderately well sheltered. Two beds run the whole length, and are 7 to 8 feet wide, with a walk up the centre and on the opposite side of the beds. Running parallel with the outside walks are borders about the same width as the beds, or probably a little wider. At the end of these beds there is another bed 30 yards in length and 1 yard wide. These plain beds and borders are more appropriate for the style of gardening employed than any geometrical design. Fancy-shaped beds are objectionable for producing an effective display with hardy plants.

Each bed contains three rows of Roses, a choice selection only finding a place of both dark and light varieties. *La France* is evidently a general favourite, as the outer rows of one bed are entirely planted with this variety. The majority of the Roses are upon their own roots, and have produced some remarkably fine flowers. Two rows of seedling Carnations are planted on each side of the centre row of Roses in each bed, the Carnations being strong, robust, and flowering abundantly, promising to continue until cut off by frost. Alternately with the Roses in the centre row is one plant of *Gladiolus brecheleyensis*, which are now highly effective. Each of these plants rise out of a small patch of *Mignonette*. The beds are edged with *Ten-week Stocks* and dwarf *Asters*, which are planted alternately, the latter being in full beauty; the *Stocks* having passed their best now have just been removed. Between these and the Carnations are dotted in the open spaces between the Roses in the outer rows *Asters* of taller growth, *Phlox Drummondii*, and a few double *Zinnias*. These beds are a thorough mixture, but not crowded, yet gay and diversified, affording an abundance of flowers for cutting. The beds are gay in spring with clumps of *Alpine Auriculas*, *Hyacinths*, *Tulips*, *Narcissus*, and other early-flowering plants. The bulbs are planted deeply, so that the beds can be forked over without injuring them, and they can also be avoided with the trowel when planting the summer occupants. The end bed is entirely devoted to seedling Carnations, and a finer lot of bloom I have never seen.

The side borders are also gay in spring with bulbs, *Pansies*, *Aubrietias*, and other early flowers, and their places afterwards planted with *Intermediate* and *Ten-Week Stocks* (the former

wintered in a frame), Dianthus, Zinnias, Candytuft, Asters, and other suitable annuals. After the early-flowering plants have ceased flowering the borders are gay with a good collection of double and single Pyrethrums, *Narcissus poeticus flore-pleno* being freely planted and very effective, as they flower about the same time as the Pyrethrums; in fact, the latter are in their full beauty just when the *Narcissus* are past their best. These, however, are at once succeeded by the double white Rocket (*Hesperis matronalis alba plena*), which are freely planted, and in full beauty with the Pyrethrums, which are amongst the best plants that can be employed for mixed borders, because they produce their flowers in succession from early season until cut off by frost. Sweet Williams are also employed, and come usefully into flower when many of the earliest Pyrethrum blooms are getting over. Spanish Irises are also planted, and are very effective with their slender stems and delicate flowers rising out of and above the other plants. Delphiniums and French Paeonies with their large fragrant flowers have a place towards the back of the side borders.

Phloxes are grown in quantity, especially the early-flowering varieties. Miss Robertson, Princess of Wales, Mrs. Downie, Max Kobb, Wm. Kirkpatrick, and Madame Rendatler are amongst the best. These are planted over the entire borders, so that they alone render them gay when the earlier-flowering plants are over or considerably past their best. Many of these Phloxes are propagated annually from cuttings, and throw up one large spike and then break into growth from below, and in due time flower freely again. This is especially the case with Princess of Wales and that beautiful pure white variety Miss Robertson. The late varieties are also included, and from their taller habit of growth are kept near the back of the borders. *Lilium candidum*, *L. auratum*, and the varieties of *L. lancifolium*, as well as a good quantity of Pentstemons and Antirrhinums, with *Gladioli brechleyensis* (planted rather late), keep these borders gay until the approach of winter.

The object in planting a good number of plants of a few kinds is the means by which the borders are kept attractive over the longest possible period without any serious break. With a greater number of kinds the borders could not be made so effective.—L. D. W.

LIFTING PEACH TREES.

THE practical notes that have appeared on this subject of late are in every way sound and seasonable; but the practice of periodically lifting Peach trees is not general, and the operation is only undertaken by many when some circumstance compels them. Lifting, then, is regarded as both serious and critical; in fact, failure or partial failure is looked forward to as a certainty. When trees have remained undisturbed for a number of years it is not unreasonable to expect failure, because the trees are not in a good condition to start vigorously into growth the following season and bear a good crop of well-flavoured fruits. In whatever soil trees may be growing, if undisturbed for a number of years they are characterised by absence of fibrous roots. Without abundance of these necessary feeders fruit of the first quality can scarcely be expected. But when trees are annually lifted, instead of having long woody fibreless roots they have more the appearance of door mats or box bushes. In the one case there is a difficulty in finding the roots, and in the other in working out and removing the soil from amongst a complete network of feeders. I am but little surprised at Peach trees having the "yellows," mildew, or other diseases they are subject to when planted in deep borders and left unattended for years as far as the roots are concerned. Our immunity from these annoyances is the result of annual lifting and working amongst the roots a few barrowfuls of fresh compost, or merely returning the soil removed in lifting if in a fertile state.

Labour is often unnecessarily spent when making borders for Peach and Nectarine trees; in fact, large deep borders are too often made and filled with fresh soil, not only being a waste of labour, but also of material. Deep borders are not needed for Peach trees, and if a depth of 18 inches of soil is given with abundance of drainage below it is ample to grow trees of a very large size. Mr. Iggulden says, page 168, "The old surface soil, may be disposed at the bottom of the hole made, allowing a depth of 18 inches for the fresh compost." Would it not have been wiser to have removed entirely the whole of the spent surface soil and filled up the border while lifting the trees with broken bricks, clinkers, or other suitable material, leaving only a space of 18 inches for compost? What are deeper borders needed for?

I have frequently seen quantities of broken bricks used in Peach borders, and have been at a loss to know what service they are. I could understand their use in soil of a very heavy nature, yet Peach trees like heavy soil, and it is almost impossible to make

it too firm or too heavy for them. But "brickends" are used in some gardens where the soil is comparatively light; a good application of clay would prove of greater service to the trees than filling the borders with rubbish. Perhaps he, or someone else, will say if Peach and Nectarine trees derive any benefit from their application.—A. B. C.

HARDY AND TENDER OUTDOOR FLOWERS.

HARDY herbaceous plants are now considered quite as necessary in gardens as Grapes in fruit houses or Maidenhair Ferns in the plant house. Comparison between ordinary bedding plants and these is out of place, because there can really be no reasonable comparison between the two classes. There is not only room for both kinds of plants in most gardens, but one is as much required as the other. Herbaceous plants may be omitted and only bedding plants grown, or the former may be grown to the exclusion of the latter, but in either case a desirable feature in the decoration of the garden will have been overlooked. Without doubt we can secure a succession of flowers with hardy flowers from earliest spring to latest autumn, and with a series of gardens to be effective at various given times the display can be regulated to any season; but with gardens as they are at present, and as they are likely to remain at least for some time, such a series of arrangements would hardly be possible. Scarlet Pelargoniums and Calceolarias have obtained a standing from which it would be difficult to displace them, even were it desirable to do so. The garden of lawns and flower beds have done duty for so long, and have been so greatly the means of increasing the practical love of flowers amongst all classes, that they cannot be ignored. Gardeners may be conservative, but not so much so as the owners of gardens. It is not necessary to dispute the one great fault against these beds, that the period of their beauty is a limited one. If it is a fault it is one shared by all kinds of plants. The sameness as to the kind of flowers used to fill these beds has been very greatly altered and the primness relieved.

The disinclination of owners of old gardens to change even objectionable features is an obstacle which cannot be overcome. We can point out the want of taste in cutting out beds on lawns in shapes which are too common—hearts, crosses, initial letters, scrolls, and beds with many points, which can be treated in planting only in the best style, and then can only be managed effectively by good taste. But even in cases where the beds are of the simplest outline there is room for improvement in the planting. The habit of cutting up beds into divisions cannot be considered attractive when judged by the result. There may be a certain prettiness in detail, but as a broad feature of arrangement there is failure. No mode of planting is so satisfactory as that of planting in blocks either of one colour or in mixture, having an edging to each bed—white, grey, or brown is best, and according to size of bed, one or more bands of harmonising colours between the edging and main block. Flatness is broken by the free use of fine-foliage plants. With carpet bedding we have slight sympathy. Artists like a Roger or a Graham no doubt make studies which ordinary gardeners feel their utter inability to copy; and it is here that the ordinary gardener fails. Most likely he is not an artist, and if he is he finds his material utterly inadequate to carry out his designs to a successful issue. A want of taste and insufficient labour to keep the beds in first-rate order are not so noticeable in ordinary flower gardening; in carpet bedding these are everything.

With regard to the adaptability of certain flowers to different soils and climates, there is no doubt about these varying greatly. Take Pelargoniums for example. If we commence at the south of the highlands of Scotland, draw a line through the centre of the lowlands southward through the backbone of England till we reach the line of the Humber or the Mersey, we might state that northwards and to the west of that line it is not advisable to grow Pelargoniums at all as they are so generally unsatisfactory, while eastward it will be safe to do so, and away to the south. Tuberous Begonias appear to succeed very well where Pelargoniums are a failure. Then, in addition to flowers which are already common in flower gardens, such other good flowers should be introduced as *Vittadenia triloba*; Japan Anemones, which do not require any edging, nothing surpassing their own foliage. *Tritoma Uvaria* is one of the grandest plants for large gardens; *Sedum spectabile*, very valuable. *Oenothera prostrata*, *Stenactis speciosa*, *Helianthus multiflorus* fl.-pl., *Salvia patens* and *S. fulgens*, *Chrysanthemums*, *Pentstemons*, and *Phloxes* may one and all be employed with good effect. Of course some of these require large beds and a large open space around them, but they are worth any attention. *Tritomas* are at the present time glorious in effect, and can be seen half a mile distant. An herbaceous border in the autumn

flower garden should be planted with those flowers which are at their best in autumn.

In commencing the culture of hardy plants both annuals and ordinary bedding plants may be employed, but with a sufficient number of plants perennials should be strictly kept to themselves. They require a mode of treatment inimical to the well-being of their shorter-lived relatives. A word of warning may be here given to beginners or those who have not had a long experience of these plants, and that is this: A system of merely striking the plants in the ground and leaving them unattended, with the exception of tying up stragglers, cutting over dead stems, and an annual doing-up of the border, is not the sort of cultivation to do these flowers justice. It has been our experience that more labour is required to keep them in good order than is needed for ordinary bedding plants—that is, to keep them in the same condition. To do justice to the plants we find it necessary to lift them every second or third year, well manure, and either dig the ground deeply or trench it. The plan we have found best has been to propagate as many plants of each kind required at this season. During winter the remainder of the plants are destroyed, with the exception of bulbs which are merely transplanted, being also divided if required at the same time while the ground is being cultivated. In spring the plants are put in these places closely enough to be effective the first season. The majority of the plants are divided, and the divided pieces laid in like Box in a trench along which a little manure, such as that used for Mushroom beds, has been placed. Cuttings are also inserted at this time, being covered with old sashes. Seeds of such things as Aquilegias and Alpine Poppies sown now, and the young plants obtained kept growing through the winter, also do well to place out with the others.

It is strongly advisable to limit the time of the display. If you have a good decorative effect from March till July, then trust to tender bedders after that time. It is possible to have a continued display until winter sets in, but the majority of gardeners cannot do so. The cultivation must be of the highest order, early-flowering plants kept free from seeding in order to flower again in autumn. A large place in the ground must be occupied with Tritomas, Michaelmas Daisies, and other late-flowering plants, necessitating a broader space of ground than can generally be obtained for this purpose, and above all an amount of attention which it is often impossible to secure.

Just a few words as to the kinds of plants to grow. I have seen more than one so-called collection of hardy plants bought at a somewhat heavy expense, and not over 20 per cent. of the plants were worth growing. To those who are unacquainted with these flowers it is of course difficult to decide as to the sorts to purchase. Such improved flowers as Antirrhinums, Delphiniums, double Pyrethrums, English Irises, and Phloxes should be very largely employed, as they are sure to give satisfaction, afterwards the commoner hardy species may be added. Curiously enough forms of British wild plants are amongst the very best of hardy plants.—B.

LORD NAPIER NECTARINE AND HALES' EARLY PEACH.

I GATHERED from the warmest end of my early house Royal George Peaches on the 23rd of May, and the first fruit of Lord Napier Nectarine on either the 14th or 15th. This tree is situated in the middle of the house and is young, not having filled the space allotted to it. The fruit it bore this year was its first crop, and I was perfectly satisfied with the results. I first saw this Nectarine fruiting freely on a very small tree at Court Hey near Liverpool, and in consequence obtained a tree. The Court Hey tree grew rapidly and fruited freely each season, having ripe fruit in May. Mr. Elsworthy considers it a fortnight earlier than Royal George Peach in his house. This is only two examples of success with Lord Napier, and Mr. Elsworthy's experience with it is much greater than mine, and I shall be pleased to see the opinions of others who have established trees, and have fruited them with other varieties in May.

Like Mr. Taylor I have always had a dread of large-flowering varieties for early forcing; but since I found out the deficiency that appears most marked with those varieties, the fear of not obtaining a crop from them is passing away. I find they are short of pollen at a time when it is wanted, and the pistil is too far advanced before the pollen appears on the stamens. Lord Napier is not so badly affected in this way as some, but I carried the pollen to it from my Royal George trees in the same house. I have a tree of Noblesse in my third house, and have failed more than once in securing a crop, but never since I discovered it required the aid of pollen from neighbouring trees.

Hales' Early Peach I can say but little about. I have a young tree from which, from its size and quantity of blossom, I anticipated a dozen and a half or two dozen fruits, but it only ripened six. The tree is still in a temporary position.

Two years ago I was recommended to obtain a tree of Early Alexander, as being the best and most satisfactory of all the early Peaches. It is a large-flowering variety. I shall be pleased to see stated the merits of this Peach, for I shall hesitate to destroy a good tree of Royal George to make room for it until I know more about it, and it can only stand one more year in its temporary place. I do not expect it to fruit next season, as the position in which it is in is not very satisfactory.—W. BARDNEY.

LORD NAPIER NECTARINE is one of the most valuable Nectarines ever raised. I am sure Mr. Taylor need not fear to plant it in an early house, as it sets its fruit very freely indeed in our orchard house. I have grown first and last at least thirty varieties of Nectarines, and if I was allowed to select three varieties only for planting they would be Lord Napier, Stanwick Elruge, and Pine Apple. If by any chance there could be room made for another one it would be Victoria. By substituting Victoria for Stanwick Elruge the season would be prolonged, but then you would omit a much more beautiful variety, for appearance is of great importance, although it will scarcely do to place it before flavour. But from the market-growers' point of view high colour would be placed before flavour, and Stanwick Elruge would always command a higher price than Victoria. Besides, high and rich colours look best on the table when the fruit is arranged for dessert. The good old Nectarines Violette Hâtive and Elruge are out of it now, and Hunt's Tawny, which used to be the earliest, is nowhere.—J. DOUGLAS.

IN reply to Mr. Taylor's inquiry respecting the earliness of Hales' Early Peach compared with Royal George and others. My experience of it is that, growing in a second early or midseason house facing east, it ripens from a fortnight to three weeks before Royal George, and nearly as much before Early York. I certainly consider it far before Early York in size and appearance, and better than Royal George, except, perhaps, the vigorous constitution and free-bearing properties of the latter.

With regard to "LANCASTRIAN'S" inquiry respecting Lord Napier Nectarine, I find it to succeed well in a late house. Upon taking charge of these gardens in July of last year I found the border of one of the late Peach houses in a particularly bad state with regard to drainage, and the trees in a poor condition. I lifted the whole of them, redrained the border, carefully replanting. Two of the trees were Lord Napier Nectarine. I allowed one of the above and one Peach to carry a crop this year, which they finished well. The change in the appearance of all the trees in this house is very marked this season. If I were going to plant Nectarines in a late house I should certainly give Lord Napier a place. My employer says there is no Nectarine like it.—W. JENKINS, *Aldin Grange, Durham.*

SOME USEFUL PALMS.

DURING the last half dozen years our knowledge of these valuable decorative plants has been considerably increased by the large number of new and rare species which have been introduced by enterprising nurserymen, in whose houses one may see thousands fast approaching that size which is most desirable in plants for decorating the dinner-table. Few cultivators are unacquainted with the value of such Palms as *Cocos Weddelliana*, *Areca lutescens*, and *A. Verschaffeltii*, which from their graceful and robust habit are so well adapted for decorative purposes. The rough treatment these, and in fact almost all Palms, will bear with impunity renders them of especial service. It would be difficult to find any plant even among Palms which would surpass such as the above for general purposes, yet among the newer introductions there are many, the claims of which are quite equal to the best of the older kinds; and as there is a great range of variety of character in the members of this large order, it will be found that some of these less known species possess both beauty and distinctiveness that must win for them general favour.

To commence with the genus *Cocos*. We have in addition to *C. Weddelliana* a very ornamental and rather rare species in *C. plumosa*, which is perhaps one of the most graceful and noble Palms known. One of the most effective groups ever arranged by Mr. Wills owed much of its beauty to the presence of several noble specimens of this Palm, their dark green plume-like leaves, towering up and curving over the smaller plants, having a most beautiful effect. Along with this species may be mentioned another almost similar one—viz., *C. flexuosa*. Both these kinds are

erect-growing plumose-leaved Palms of rapid growth and healthy robust nature. They are stove species, both being natives of the New World tropics.

A Palm which is yet rare, and the name of which seems somewhat undecided, is that known as *Glaziova insignis*. Whatever this Palm may be it is certainly closely allied to *Cocos Weddelliana*, with which in foliage characters it is almost identical, the only distinction being in the terminal pinnule, which in the *Glaziova* is broad and in the *Cocos* very narrow. The name *Glaziova* has long ago being given to another plant, so that it cannot be retained for this Palm. A plant at Kew labelled *Juania australis* seems to be in no way distinct from the Palm known as *Glaziova*. However, be the name what it may, this is a very handsome species, quite as handsome as the *Cocos*, and likely to become as popular.

Amongst *Geoninas* there are several very graceful species, notably *G. Carderi*, *G. gracilis*, *G. Seemanni*, and *G. Schottiana*. These are all deserving of a place in the stove, *G. gracilis* being already well represented in a few collections; whilst *G. Seemanni* is very rare, Mr. Williams of Holloway possessing perhaps the finest cultivated specimen of it.

Brahea filamentosa, now known as *Washingtonia filifera*, is a handsome fan-leaved Palm, clothed with long silvery threads which add considerably to its attractiveness. This species thrives well in a greenhouse or conservatory, and if liberally treated soon develops into a noble plant.

The genus *Calamus* contains many beautiful species—in fact every one is worthy of cultivation, their graceful pinnate leaves and handsome habit even in young plants being especially serviceable. The best of them are *C. ciliaris*, which I consider to be the most beautiful Palm known; its Fern-like pale green foliage arranged alternately along the stem are most attractive. This species is rather delicate, but in a moist stove there is no difficulty in keeping it in good health. A character possessed by this Palm is that of throwing up young ones from the base, sometimes before the stem is a foot high, which may be taken off and grown on in separate pots. *C. asperimus*, *C. calilepis*, *C. fissus*, *C. Lewisianus*, *C. palembanicus*, *C. periacanthus*, and *C. melanochætes* are other beautiful kinds, some of which are known as *Dæmonorops*.

Amongst the *Chamædoreas* there are *C. elegantissima*, a graceful *Cocos*-like species; *C. elegans*, with broader pinnules; *C. glaucifolia* and *C. graminifolia*, with plumose pale green foliage; and *C. tenella*, a pretty little dark green species, interesting from its being the smallest Palm known, plants not more than 6 inches high flowering and fruiting yearly.

Deckenia nobilis is one of several beautiful Palms which are found in the Seychelles Islands, and which are becoming great favourites. This species, along with *Acanthophoenix crinita* and *Nephrosperma Van Houttii* are remarkable for their graceful pinnate foliage, and a stem and leaf-petioles thickly covered with long stiff spines. They are really beautiful stove species, and thrive well in a moist atmosphere.

Verschaffeltia splendida, *V. melanochætes*, and *Stevensonia grandifolia* are noble simple-leaved Palms, also from the Seychelles. The first is a rather delicate Palm, but when well grown it is undoubtedly one of the very best exhibition plants. The *Stevensonia* is a very large-leaved Palm, remarkable in that the foliage is thickly marked with brown spots on a dark green ground. The stem of this species is also thickly clothed with long spines. There are some very fine specimens of the *Stevensonia* in the Kew collection.

The *Euterpes* were once more largely cultivated than they appear to be now, especially *E. edulis*, the Cabbage Palm, as it is called, from the hearts or young undeveloped crowns being largely used as food by the natives of South America. It is a graceful free-growing species, with pinnate leaves and smooth erect stem. The same may be said of *E. oleracea*, or perhaps even more, for this Palm is a very handsome table plant, the gracefulness of its foliage being very attractive.

Heterospatha elata is a dwarf pinnate-leaved Palm, handsome when well grown, but rather miffy, and perhaps somewhat too stiff for table work. A noble plant for the stove or warm conservatory is *Hyophorbe amaricaulis*, closely resembling *H. (Areca) Verschaffeltii*, but of stronger habit, and with reddish stem and leafstalks.

Amongst *Kentias* there are several very attractive and useful species, the best known being *K. Fosteriana* and *K. Belmoreana*, both very elegant table plants and valuable to the exhibitor. Others equally good are *K. Wendlandii*, with broadish dark-green pinnules and a robust grower. *K. australis*, which is not unlike *K. Fosteriana* and *K. Lindeni*, a robust broad-pinnuled species, and especially remarkable for the deep shining purple of the young leaves as they are unfolding. Several new *Thrinaxes* are also deserving of mention, as also are *Sagus vitiensis*, *Rhapis*

humilis, *Phoenix rupicola*, *P. sylvestris*, and *P. reclinata*, all very desirable species, and eminently adapted for furnishing and exhibition purposes. Other species might be mentioned which are also to be seen in large quantities in some of the London nurseries, but sufficient have been enumerated to show what a host of useful Palms have been recently introduced by nurserymen and others interested in this noble order.

With very few exceptions the cultural requirements of Palms are such as need not puzzle the merest tyro, given of course the necessary temperature. A rich loam is the best soil to use for them, though almost any sweet and fresh soil will do. A liberal supply of cow manure either in the fresh or liquid state is a capital food for all Palms. Most of them require plenty of water all the year round, and in the event of any becoming root-bound, and it not being desirable to transfer them into larger pots, they may be grown for a considerable time in such a state by keeping the roots well supplied with water and liquid manure. The seeds of most Palms retain vitality for a year or two, so that there is little trouble in importing and growing them, the principal difficulty being in procuring them from the natives. This difficulty is, however, rapidly being met by the large numbers of fruiting specimens which are now to be found in our colonial botanic gardens, from whence abundance of seeds of many hitherto rare kinds are now to be procured, so that we may hope to soon be in possession of other Palms which will prove as serviceable as the few we have known for some time.—W. W.



FRUIT HOUSES.

Vines.—As heavy and cold rains may now be expected, covering late Vine borders will be necessary to insure the fruit keeping satisfactorily. Wooden shutters are the best, but tarpaulin or a thick thatch of straw or bracken sloped so as to carry off the water answers well. Mats, or a light covering of straw, placed on inside borders will to some extent prevent moisture rising, as well as prevent the border becoming too dry. The Grapes should be frequently examined, removing all decayed berries, as if left others are soon affected; but if thoroughly ripened the thick-skinned varieties will give little trouble if the house is watertight. The houses should be kept as cool and dry as possible, only employing fire heat to secure a temperature of 50°, or when the external atmosphere renders it necessary. Have the ventilators closed in damp weather, opening only when the outside air is dry, at the same time applying fire heat. Turn off the heat early in the afternoon, so as to have the pipes cooled before night.

The earliest Vines must be pruned, and the house receive a thorough cleaning, the border being top-dressed as advised in a former calendar. The outside border should be covered with a good layer of dry fern or straw litter, with shutters or tarpaulin to throw off heavy rains or prevent the border being chilled by heavy rains or snow. Where fermenting materials are obtainable in quantity to admit of their renewal when necessary, preparation should be made of these for placing on outside borders at least a fortnight before closing the house, and a bed of the same materials introduced inside at starting time will aid the Vines.

Where new ripe Grapes are required very early preparation should now be made for starting the earliest Vines in pots, and if a slight bottom heat, such as that of three parts leaves to one of stable litter, their starting regularly will be the better insured. The pots should be raised on pedestals of brickwork, so as to prevent the pots sinking with the fermenting materials, the materials being brought up about the pots, but not to cause the heat about them to exceed 75°, between that and 70° being suitable. The soil in the pots must be brought into a thoroughly moist condition by soaking or repeated watering at 80°. The canes should be slung in a horizontal position. The temperature at starting must not exceed 55° artificially, but as the Vines break it should be gradually increased to 60° or 65°. Syringe the Vines in the morning and early afternoon.

Melons.—The last fruits are swelling well, and will need supporting in good time. Remove all superfluous growths as fast as they appear, it being important that the plants have the advantage of every ray of light, and the fruit be exposed to the sun as much as possible. Only moderate supplies of water will be needed, and the syringe must be used very sparingly over the foliage. A light sprinkling on bright afternoons, with damping available surfaces occasionally, will be sufficient, as too much moisture at the roots or in the atmosphere tends to encourage canker, for which a vigilant watch should be kept, and upon its appearance quicklime must be pressed well into the affected parts. The temperature should be maintained at 70° to 75°, with an advance to 85° or 90° from sun heat, closing early. Maintain the bottom heat steady at 80°.

In dung-heated pits or frames watering should cease, as a dry condition at the roots will accelerate the ripening and improve the quality of the fruit. Linings will be necessary to maintain the heat of the beds, and the lights should be covered with mats at night. The fruit from exhausted plants not yet ripe should be cut with a good portion of stem attached to each, and be placed in a sunny position in a warm house.

Cucumbers.—Liberal attention must be given the autumn fruiters to insure a strong growth, as much of the after-success depends on the foundation now laid. Remove all male blossoms and tendrils, avoiding overcropping, and do not allow the fruit to hang too long on the Vines. Syringe only on bright warm afternoons, gradually reducing the atmospheric moisture as the days shorten, continuing to earth up the roots from time to time, pinching out the growing point every week or ten days, reserving only as much growth as will have full exposure to light and air.

The plants for winter fruiting should have a light position, so as to keep them sturdy, and the fermenting bed—if such be employed—be prepared. Good stable dung and Oak or Beech leaves well incorporated and turned over every three or four days, moistening if necessary for a fortnight, form a good bed, and next to this tanners' bark, which should be had fresh, thrown into a heap, and when fairly warmed through it can be placed in its final quarters. The plants for fruiting at Christmas should be placed in the beds without delay.

FLOWER GARDEN.

Pelargoniums of the tricolor, bronze, and other ornamental-leaved varieties are difficult to winter if at all affected by frost; it is, therefore, necessary to have suitable quarters, and preparations should be made for potting them quickly directly a change in the weather necessitates their removal. From their slow growth it is not desirable to cut them back much, merely removing any crowded branches and stripping them of their leaves. The remaining shoots may with advantage be left their full length to afford an early supply of cuttings in spring. A little frost will not much affect the green-leaved varieties. They should be cut well back and potted singly after the roots have been trimmed, or they may be packed close and stored away in boxes. Coleuses, Iresines, and all tender plants should be placed under cover at once. The tender succulents, such as *Echeveria metallica*, *Pachyphytum*, *Kleinias*, and *Sempervivum tabulæforme*, should be removed, or if it be desirable to continue them out a time longer it will be necessary to have some light protecting material to place over them when frost is expected. Where winter or spring bedding is contemplated let all the plants be in readiness and fully arranged, so that no delay may occur when it is necessary to clear and refill the beds.

In the mixed border many of the autumnal plants will still be attractive, and a little extra attention to ensure neatness will compensate in some measure for the paucity of flowers. Dead and decayed leaves and flower stems should be removed as the plants cease blooming. Hollyhocks which are cut down will produce cuttings, which may be taken off with a heel and struck in slight heat. Seedlings of these may be potted singly and wintered in cold frames; they will make strong plants for next season. Any gaps in the mixed border should be filled with Brompton Stocks, Wallflowers, Canterbury Bells, Antirrhinums, and other biennials or perennials, Pansies, Pinks, Carnations, and Picotees may yet be planted out, the earlier the better, firming the soil well about the roots. Most of the

Rose buds will ere this have taken, and all ligatures should be removed and the Briar shoots reduced in length.

PLANT HOUSES.

Orchids.—The temperature for the East India house must be kept at a mean of 70° by day and 60° at night, *Cattleya* house 65° by day and 55° at night, and for the *Odontoglossum* house 55° by day and 45° is advisable at present. Very little ventilation will be needed except during mild weather. The atmospheric moisture must be reduced and syringing discontinued, except in the case of plants making growth to restore plants becoming shrivelled, and in the case of newly imported plants, in which cases syringing will be necessary. *Phalaenopsis* must be very carefully supplied with moisture, as the leaves at this season are liable to decay. *Calanthes* now producing their flower spikes should have every encouragement with heat and moisture. *Dendrobiums*, *Cattleyas*, and any other Orchids which have completed their growth will require very little water; but *Zygopetalums* and other plants commencing to grow will need moderate moisture, and the most favourable position in the house for growth—plenty of light and moisture, repotting if necessary or surface-dressing with fresh material. Some of the *Oncidiums* are useful for autumn and winter flowering, especially *O. aurosum*, *O. bicallosum*, *O. flexuosum majus*, *O. macranthum*, *O. incurvum*, *O. ornithorhynchum*, and *O. tigrinum*. These will bear a cool dry atmosphere when in flower, and the flowers last much longer than when in a moist atmosphere. Sufficient water only should be given to prevent the plants suffering. *Vanda cærulea*, with *Odontoglossum grande* and the *Pleiones* when in bloom, will also bear a cool dry temperature (50° to 55°). Let the glass and woodwork in all the houses be thoroughly cleaned both inside and outside, taking advantage of wet weather to give the plants a thorough cleaning, neatly staking all young shoots. Search for slugs by lamplight, as they are very destructive to the young growths, flower spikes, and roots of Orchids.

GREENHOUSE.

Camellias that have been outdoors should at once be transferred to their winter quarters, and the plants thoroughly cleaned. Plants that have not been out should likewise be similarly treated.

Plants of *Cassia corymbosa* that have flowered may be cut back and placed at the warmest end of the greenhouse, where they will commence growth slowly. Any plants which have a number of heads to open should be placed in a house slightly warmer than an ordinary greenhouse, in which the bright yellow flowers will open and be very useful. *Neriums* are not so much grown as they deserve to be, nor are they treated in such a manner as to make the most of them for decorative purposes. Cuttings now taken from plants that have the wood thoroughly ripened and their flowers set, and struck, as they will readily in a good bottom heat, and shifted into 6-inch pots, will form beautiful plants very useful for decorative purposes.

Some of the most forward and promising plants of *Daphne indica* may be placed in a temperature of 50°, and they will not only flower earlier, but admit of more bloom being cut from them than later-flowered plants, which when cut hard do not break again freely.

Croweas bloom nearly two months at this season, and yet they are seldom seen, their pretty star-shaped pink flowers contrasting well with most other plants. They are not difficult to grow, and in a conservatory slightly warmer than an ordinary greenhouse they bloom freely. *Witsenia corymbosa*, with its beautiful though small bright blue flowers, is too much neglected, its colour being rare at any time, especially at this season.

Mignonette grown in pots for winter flowering should have the growths neatly secured to stakes as they advance, and have a light airy position in a house with a temperature of 45° to 50°. The plants, if the flower spikes are not cut as they become fit, must have the seed vessels removed; or they will impair the vigour of the plants more than a similar number of flower spikes. If the plants are not as large as required, the bloom as it shows should be pinched out until the size of specimen desired is secured. The plants are impatient of fumigation, hence if it be resorted to for the destruction of aphides it must be moderate, but it is better to syringe with clear tobacco water. *Heliotropes* that have been prepared for autumn and

winter flowering by liberal treatment during summer, and fully exposed, with the flowers pinched off, and supplied with liquid manure, should now be placed in a light airy house with a temperature of 45° to 50°, in which they will bloom freely.

Abutilons now are so numerous and varied in colour as to be quite useful for winter flowering. Young plants struck in spring and grown on through the summer will be stout well-furnished plants in 6-inch or larger-sized pots, and with a little extra warmth will bloom through the winter, being alike useful for furnishing and for affording flowers for cutting. Weak liquid manure should be afforded the plants, with a light position and a temperature of 50° to 55°.

THE BEE-KEEPER.

THE STEWARTON AND THE BAR-FRAME HIVE.

THE Stewarton hive had once and for many years an enlightened and able advocate and patron in the person of the "RENFREWSHIRE BEE-KEEPER," and since his retirement no one has come to the front to take his place. This I regret much, for the principle of the Stewarton hive cannot be too well known, and there are reasons for thinking that its advocacy at the present time would be valuable to a great number of apiarians. Many people like to follow the fashions and go with the majority. They readily spend their money for things last out, hence new inventions are the order of the day. Many bee-keepers are going to extremes just now. The bar-frame fever is reaching to its height. Dealers and hive-makers seem at their wit's end to get something fresh to offer for sale. Old hives receive new and various shapings and remodellings in their reproductions. The markets and show tables are full of novelties. For many years I have privately advised many bee-keeping friends to introduce to their apiaries the bar-frame hive and give it a fair trial; nay, I have been anxious to see this hive spread over the land and become well known, believing that when this happens we shall have a reaction, and see men trusting less to hives and more to their own management. To those who follow the fashions bee-keeping is rather an expensive recreation. This statement is made, not with a view of disparaging any kind of hive or any system of management, but simply to let the readers of this Journal know that novelties are not always improvements, and that changing from one system of management to another is not the shortest road to success. The fact that so many bee-keepers are seeking new hives and new ideas proves that the past has not been successful and satisfactory; indeed, we all know that those who follow others are always behind.

Now let us examine the principal feature of the Stewarton hive, which is one of surpassing excellence—namely, its constructive arrangements for supering. The arrangements to this end in all other hives that we have seen are faulty and inferior if compared to those of the Stewarton. The Stewarton hive is made of wood in several parts, octagonal in shape and 14 inches wide. The several parts consist of three breeding boxes, each 6 inches deep, and three supers the same width 3 or 4 inches deep. All are made with bars across their tops, from which the combs are built. There is no crown board, so that if all the six boxes were placed on one another we could see through the skeleton from top to bottom down through every bar. If a swarm of bees were cast into an empty Stewarton they would not know where to settle and begin work; the hive being without crown-board, the bees could get out at the top as well as by the door. But there are slides used in the Stewarton hive which answer the end of a crown-board, and these slides are made to run in grooves in the cross bars of all the sections of the hive. This is a wonderful arrangement, well contrived, but difficult to explain to those who have never seen a Stewarton hive. If we begin to people a Stewarton two breeding boxes only are used, the slides going between the bars of the uppermost box. If the third breeding box be used it is placed underneath the others, and the slides remain as they were. When supering begins the slides are withdrawn from the breeding box and placed between the bars of the super, and if a second and third super be used the slides are moved to the top one, or crown of the hive.

This simple description of the hive is imperfect, the hive itself being so unlike all other hives. But the reader will see that the Stewarton hive complete with three supers piled on the breeding boxes is about 30 inches deep, giving the bees free access to every part of every section of the hive from bottom to top. The leading

or main principle of the hive now becomes apparent—namely, the absence of crown-boards or partition walls between breeding boxes and supers. This is the great characteristic of this valuable hive. The bars of all the sections being filled with combs, the interstices between the bars run from bottom to top, and thus the hive is without complications, and the bees have no hindrances when at work. In such a hive bees are capable of doing much work and amassing great stores of honey. Have we no fault to find with the Stewarton? None with the principle or distinctive feature of the hive, which is its peculiar adaptation for supering, and none with its size and shape. But I disapprove of wood as materials for hives of all kinds, and the Stewarton is made of wood. By reading the report of the Bee-keepers' Association I learn that an attempt is being made to introduce the Stewarton principle on the straw hive. If the attempt be successful—and there is no reason to think otherwise—the straw Stewarton, in my opinion, will be the hive of the future. I hope the hive will appear and be sold at a moderate price, and never be patented.

The prices asked for some hives are exorbitant and far beyond their value. When I was in Scotland lately, and travelling through a bee-keeping county, the train by which I was travelling halted for an hour at a railway station near which a first-rate straw-hive maker lives. I found him and family engaged at their work, making at the rate of about four hives a day, or say twenty a week. I asked if he was constantly employed in making common straw hives. He said "Yes." The hives he was then making were 14 inches wide—just the width of the Stewarton hive, and they were so well made and so low in price that I ordered a dozen of him. I am quite certain that straw Stewartons can be produced at prices low enough to tempt even cottagers to use them.

The Stewarton hive can be managed on both the swarming and non-swarming systems, and its mode of enlargement is far more likely to prevent swarming than the mode of supering through a hole on bar-frame hives about 3 inches wide. This hive has no separate apartment, all the work is done in one room, and when enlarged the outer walls are simply elongated and the roof raised a storey higher. But why object to the wooden sides of the present Stewarton hive? Wood is not a proper material for hives. It may answer well enough for summer, when bees can drive out the moisture of the hive; but in spring, autumn, and winter they have not the power of doing this, and therefore the moisture condenses on their wooden sides and rots the combs. When men have a little more experience wood will go out of fashion and straw will be employed. No less than seven prizes were offered for straw hives at the last show.—A. PETTIGREW.

TRADE CATALOGUES RECEIVED.

V. H. Hallock, Son, & Thorpe, Queen's, New York.—*Catalogue of New Plants.*

Jacques Vigneron, Orleans, France.—*List of Roses.*

Cranston's Nursery and Seed Company, King's Acre, Hereford.—*Catalogues of Roses and Forest Trees.*

E. Webb & Sons, Wordsley, Stourbridge.—*Illustrated Catalogue of Seed Corn.*

William Rumsey, Waltham Cross.—*Catalogue of Roses, Trees, and Shrubs.*

TO CORRESPONDENTS.

** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Lemon (J. D.).—The fruit you have sent is not the same as the kind that is imported, but the plant has probably been raised from seed saved from an imported fruit, seedlings being subject to great variation. The variety does not, at least as represented by the fruit you have sent, possess any merit.

Peach and Nectarine (C. A. J.).—The aspect you name is suitable for the trees, and you cannot probably plant two more useful varieties than the

Royal George Peach and Lord Napier Nectarine. It is immaterial which has the warmest position, but you will not err by devoting it to the Nectarine, with the object of securing early fruit. The centipede is not beneficial in the garden.

Flue Heating (*Anxious*).—If your flue answers well except at the end near the chimney we should only remove that part and there fix glazed pipes, which, being thinner we presume than your paving tiles, would conduct the heat from the flue more quickly. Glazed tiles placed near the fire are apt to split at the sockets; at a distance from it we have seen them used with perfect safety.

Flower Garden Boxes (*A Young Gardener*).—There is no "average" size for such boxes as those to which you refer. The size of the boxes either is or ought to be stated in the schedules in which prizes are offered. We have seen boxes 3 feet square, 4 feet square, 4 by 3, 5 by 4, and even longer. We are not aware that there is any book published with coloured designs for flower gardens.

Material for Mushroom Beds (*J. D.*).—We have no doubt that London stable manure where the horses are bedded with cocoa-nut fibre refuse would do for Mushroom beds if mixed with ordinary decayed stable manure. Even sawdust that has been used as bedding in stables has, when largely mixed with the material in question, produced excellent Mushrooms. We doubt if either sawdust or cocoa-nut fibre refuse used alone would answer the purpose, as the former especially is liable to promote the growth of small fungi.

Removing Sub-laterals from Vines (*East Berwickshire*).—Provided the principal leaves of the Vines are fully exposed to the light the laterals now being produced will not do any harm. If they shade the large foliage remove them gradually as you suggest, not by armfuls at once. You do not say whether you have cut the fruit of the Black Hamburgs; if you have and the growth is strong you may remove the laterals, but do not remove them otherwise except for the purpose referred to of exposing the original foliage to the light and air. The production of sub-laterals when Grapes are ripening is a favourable symptom, as it indicates that the Vines are not overcropped, but have a surplus store of energy for future work.

Gros Maroc Grape (*W. J.*).—Although we have had no experience with grafting this variety on a healthy stock of Lady Downe's, we should not hesitate to try it if we desired to add it to our collection. You might well try it with the rest, and if it does not answer your expectations you can readily remove it, and train an additional rod of whatever variety you find most useful in its place. Gros Maroc is a strong grower, does not as a rule produce very large bunches, but the berries are fine, colour beautifully, and possess an agreeable sprightly flavour that is pleasing to most palates.

Early Potatoes for Market (*H. M.*).—We doubt if there is a better or more profitable early variety for the purpose in question than a true stock of Myatt's Improved Ashleaf, which is synonymous with Rivers' Royal Ashleaf. Beauty of Hebron is also profitable in some districts, and in light soil and rather dry and warm localities the Early Rose crops freely and is of good quality. If any of our readers have found other varieties more profitable than those we have named we will gladly record their experience.

Shelter for Garden (*R. P. O.*).—If you want a tall sheltering screen we know of nothing that will afford it so quickly and inexpensively as a hedge of Lombardy Poplars. They can be cut to any width and height you like, from 2 feet in diameter to 20 feet or more high. Hornbeam forms a good hedge, and is well adapted for a screen of moderate height. Evergreen Privet is liable to be injured by frost during very severe winters. As an evergreen screen Thuia Lobbi forms one of the best.

Standard Fruit Trees (*Idem*).—You do not say whether you want dessert or culinary Apples, so you must choose for yourself from the following. *Dessert*.—Devonshire Quarrenden, *Cox's Orange Pippin, Wyken Pippin, and *Wormsley Pippin. *Culinary*.—Keswick Codlin, *Cellini, Golden Noble, *Blenheim Pippin, and Dumelow's Seedling. Those prefixed by an asterisk are useful for both dessert and culinary purposes. *Pears*.—Jargonelle, Louise Bonne of Jersey, Hessel, and Swan's Egg. *Plums*.—Rivers' Early Prolific, The Czar, White Magnum Bonum, and Victoria.

Eccremocarpus scaber (*Surrey*).—This is doubtless the plant to which you refer. It is a native of Chili, and has rough leaves and orange-coloured flowers. It is hardy in most districts, and when established needs no protection; but it is advisable to place a little cocoa-nut fibre refuse or other suitable material over the roots of young plants. The plants die down on the approach of winter like Hops, but fresh growths start from the fleshy roots in the spring. We presume your plant is established in the soil—not in a pot, and the roots will only need the protection indicated. If the plant is in a pot winter it in a frame or cool greenhouse. Fresh seed germinates quickly when sown in heat in the spring and kept moist, the plants flowering the same season.

Oak Spangles (*Idem*).—These are produced by insects, species of *Diplolepis*, some of which produce very pretty galls—red or orange and fringed. In most museums they can be seen, and in the British Museum a very good collection will be found.

Violets in Frames (*A. D.*).—In all probability the soil in which the Cucumbers were grown will be suitable for the Violets, but it must be thoroughly moist without being saturated. An addition of decayed vegetable matter and burnt refuse would improve the soil if it is heavy. As you have not stated the distance that the present soil is from the glass we are unable to advise you on that point; but you will, we think, find all the particulars you require in an excellent article on Violets in Frames on page 224, September 7th, 1882. If you do not possess this number it can be had from the publisher, post free, for 3½d. in stamps.

Conifers for Border (*A Leeds Subscriber*).—We think you are attempting far too much in a border only 7½ feet wide. So far as we understand the case, we think a row of Conifers of one kind to form a screen or hedge would be decidedly preferable to a mixed assortment, and we should plant Thuia Lobbi. It is hardy, close yet feathery, bright green, and very hardy. In the front of these you might furnish the border with Rhododendrons if the soil is suitable, interspersed with variegated Hollies, Boxes, and Aucubas, leaving a margin as you suggest for flowers. Large deciduous trees in such a border would spoil both the Conifers and evergreens, and very few, if any, of such trees should be planted, unless indeed you prefer them to the others.

Decayed Manure (*C. D.*).—The material of which you have sent a sample is such as many gardeners would be glad to have for mixing with strong loam for such plants as Fuchsias, Pelargoniums, Cinerarias, Calceolarias—indeed, nearly all kinds of softwooded plants and bulbs; it would be also valuable for surfacing flower beds in the summer. Added to strong soil at the rate of about a sixth of the bulk it would make an excellent compost. If used similarly with light soil it would make the mass too light, but that in a measure might be

obviated by potting very firmly. Rubbed through a sieve it would be excellent for the purpose of raising seedlings of all kinds of flowers in the spring. It would not be suitable for hardwooded plants such as Azaleas.

Plumbago capensis (*Idem*).—The old foliage is liable to be attacked with mildew, and this is no doubt the "white substance" to which you allude, but which was rubbed off the leaves you sent in transit. Dissolve 2 ozs. of soft-soap in a gallon of water, in which mix a small handful of sulphur. With this solution at a temperature of 120° syringe the plant thoroughly, but prevent by some means much of it draining into the pot. Several leaves usually turn yellow at this season and fall, the plant being semi-deciduous, like Azaleas. After it ceases flowering reduce the supply of water, and during November and two following months keep the soil almost dry. In February prune it closely, and when growth commences remove a portion of the old soil from the roots and add fresh loam. If you do not possess our "Greenhouse Manual" you might with advantage obtain it; its price is 10d. post free. We do not consider you have given us any trouble, and we shall always be glad to aid you in obtaining proficiency.

Roses for Towns (*R. W.*).—If the soil in your garden where you contemplate making a bed for Roses is not good you had better remove it to the depth of 2 feet. This will be ample if the ground is well drained, which is essential for the successful cultivation of Roses. When the soil is cleared out good fibry loam of a rather strong nature should be obtained, to which add one barrowful of good half-decayed manure to every eight barrowfuls of loam. If soil only of a light nature is available add one-seventh of clay, and incorporate it well with the soil before placing it in the bed. The clay should either be dried in some suitable place or over a fire made for the purpose, which will enable you to break it up easily into small particles. To break it well up before mixing it with the soil is much better than chopping it into pieces with a spade; for if mixed into the soil in lumps it will remain in that condition, except what little is turned to the top, which will fall by the influence of the weather. This is all the preparation needed to form a bed for Roses, but the soil should not be allowed to become into a wet saturated state before wheeling it into the bed. The following varieties may be safely planted:—La France, Général Jacqueminot, John Hopper, Jules Margottin, Duke of Edinburgh, Comtesse d'Oxford, Capitaine Christy, Abel Carrière, Souvenir de la Malmaison, Edouard Morien, La Duchesse de Morny, Magua Charta, Princess Louise Victoria, Sultan of Zanzibar, Sir Garnet Wolseley, Victor Verdier, Boule de Neige, and Louis Van Houtte. If only six varieties are required plant the first six named. It is much better to plant a quantity of a few kinds that will flourish than a greater number of uncertain varieties.

Vines and Melons (*J. E.*).—If the roots of the Vines are confined to the 6 feet-wide border, which appears to be very shallow—too shallow—in the front, you cannot expect superior Grapes unless there is a network of fibres near the surface of the border, and these are well supplied with food in the form of frequent top-dressings of fresh loam and manure. In many Vine borders there are no fibrous roots within a foot or more from the surface, and in such cases top-dressings are of little use. We suspect this is the condition of your border, and if so the sooner you remove the old soil, or most of it, raise the roots as much as possible, notching several of them by making a deep vertical cut half through the main roots and a sloping cut upwards to it, the better. If wood ashes are added freely to the loam fresh roots will be emitted the more freely. The roots must not be allowed to become dry during the process of raising them; they should be covered with soil 4 or 5 inches deep, this to be mulched with manure. A top-dressing of manure is of great service during the summer, as if the border becomes dry at the surface the roots at once leave it and penetrate downwards; neither will they permeate the surface of a border that is loose by being forked over periodically. In another column you will find what has been done by renovating Vine borders, and you cannot do better than follow the practice there detailed so far as it applies to your circumstances. In reference to the Melons, we presume you had fermenting materials in the pit, but you do not say so, and hence the roots were not dry at the bottom of the bed; if they were dry there that circumstance would account for the failure. We have seen not a few plants collapse from the cause indicated, and we have also seen them wither, this season especially, under skilled treatment by being affected with a disease, the origin and nature of which at present appear quite obscure. Melons, too, are apt to fail in the manner you describe when grown in too light soil. So far from troubling us with your second letter we are glad to receive it, as in regard to the Vines especially, and Melons possibly, it has enabled us to give you a reply that may be useful.

Names of Plants (*Rosa*).—The plant of which you obtained seeds from Ceylon is *Cassia corymbosa*; it succeeds in a greenhouse, or planted out in the open ground in summer to be taken up and potted in the autumn. The plant raised from seed sent from Bengal is an inferior form of the African Marigold. (*J. F. L.*)—1, *Herniaria glabra*; 2, *Meutha Pulegium gibraltarica*; 3, *Stellaria graminea aurea*; 4, *Insufficient*.

Names of Fruits (*J. Winter*).—1, Louise Bonne of Jersey; 2, Urbaniste; 3, Marie Louise d'Uccle; 4, Stirling Castle; 5, Tower of Glamis; 6, King of the Pippins. (*Alloa*).—1, Dumelow's Seedling; 2, Gloria Mundi; 3, Warner's King; 4, Beauty of Kent. (*Winchester*).—1, Court Pendu Plat; 2, Burrel's Del; 3, Beurre Sterckmans. (*J. P.*).—1, Lord Lenuox; 2, Cellini; 3, Duchess of Oldenburg; 4, Cellini. (*S. L. D.*).—1, Emperor Alexander; 2, Wyken Pippin; 3, Wormsley Pippin; 4, Norfolk Bearer; 5, not known, probably a local variety. (*L. L.*).—You ask for the names of six fruits, but we have only received three; 1, specimen poor and insufficient; 5, King of the Pippins; the large Apple, from which the number has been lost, Dumelow's Seedling. (*G. R.*).—The Apple is the Gravenstein. (*Four Pears*).—1, Beurre Charnesse; 2, Beadnell's Seedling; 3, Fondante d'Automne. All the fruits were over-ripe when dispatched, and decayed before examination. The sender's name of these four Pears has either not been received or been misplaced. No. 4, which cannot be identified, is a very round fruit. Our correspondent will have no difficulty in recognising the reply as the one pertaining to the fruit he has sent. Some other fruits will be named next week.

Naming Fruits (*C. J.*).—Although the greatest possible care is taken to keep the fruit separate, yet with such a number of specimens it is not impossible for an accident to occur by misplacement. In many cases, too, the numbers sent with the fruit are not attached to them firmly; several, no doubt, are apparently secure when packed, but get displaced in transit. We do not remember whether this was so with your parcel or not. Quantities of fruit reach us with tablets either simply placed on or under them, not attached at all. This always causes inconvenience, and it is sometimes impossible to determine to which fruits the numbers apply. We find it imperative to adhere to our rule only to name six sorts at one time; and when we state that it is not unusual for several boxes containing from twenty to fifty and even a hundred specimens to reach us in the course of a week, the impracticability of retaining

surplus fruits for naming in future issues will be apparent. Pears should only be sent when approaching ripeness, as when green we are deprived of an important test, that of the palate, in determining their names, and we cannot undertake to keep the specimens until they are ripe, although under special circumstances we sometimes endeavour to do so. When Pears are quite ripe when packed they are usually rotten when examined. All this we have stated more than once, and we repeat it in order to induce our correspondents to exercise judgment in sending fruit to be named. No specimens were retained from any parcels that were examined last week.

COVENT GARDEN MARKET.—OCTOBER 4TH.

TRADE quiet, with a fair demand for late wall fruit, Kent Cobs selling freely at lower rates.

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	2	0 to 7	Lemons.....	case	20	0 to 30
Apricots.....	doz.	1	0	Melons.....	each	2	0
Cherries.....	½ sieve	0	0	Nectarines....	dozen	2	0
Chestnuts.....	bushel	0	0	Oranges.....	100	6	0
Currants, Black..	½ sieve	0	0	Peaches.....	dozen	4	0
" Red.....	½ sieve	0	0	Pears, kitchen ..	dozen	0	0
Figs.....	dozen	0	6	Pears, dessert ..	dozen	1	0
Filberts.....	lb.	0	6	Pine Apples, English	lb.	3	0
Cobs.....	100 lb.	40	0	Raspberries.....	lb.	0	0
Gooseberries....	½ sieve	0	0	Strawberries....	lb.	0	0
Grapes.....	lb.	1	0				

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	Lettuces.....	score	1	0 to 1
Asparagms.....	bundle	0	0	Mushrooms.....	punnet	1	0
Beans, Kidney....	100	1	0	Mustard & Cress ..	punnet	0	2
Beet, Red.....	dozen	1	0	Onions.....	bch.	0	6
Broccoli.....	bundle	0	9	Parsley..... doz. bunches	3	0	4
Brussels Sprouts..	½ sieve	2	6	Parsnips.....	dozen	1	0
Cabbage.....	dozen	0	6	Peas.....	quart	0	10
Capicorns.....	100	1	6	Potatoes.....	cwt.	6	0
Carrots.....	bunch	0	4	" Kidney.....	cwt.	6	0
Cauliflowers.....	dozen	2	0	Radishes.... doz. bunches	1	0	6
Celery.....	bundle	1	6	Rhubarb.....	bundle	0	4
Coleworts.....doz. bunches	2	0	4	Salsafy.....	bundle	1	0
Cucumbers.....	each	0	4	Scorzonera.....	bundle	1	6
Endive.....	dozen	1	0	Seakale.....	basket	0	0
Fennel.....	bunch	0	3	Shallots.....	lb.	0	3
Garlic.....	lb.	0	6	Spinach.....	bushel	3	0
Herbs.....	bunch	0	2	Tomatoes.....	lb.	0	2
Leeks.....	bunch	0	3	Turnips.....	bunch	0	2



POULTRY AND PIGEON CHRONICLE.

SEED CORN FOR AUTUMN SOWING.

THERE is no subject connected with practical agriculture of more importance to the home farmer than the selection of cereal seeds which may be required for autumn sowing. But the difficulty of obtaining first-class true samples adapted to particular soils and climates is generally very serious. Although we may in favourable seasons grow large crops of good quality, we have no right to assume that we have the cleanest, the heaviest sample, and best millers' grain as regards quality unless it will bear comparison with the choicest sorts of Wheat which are now to be obtained from the seed-corn merchant. Again, one of the most important points in seed corn is that it should be free from the seeds of weeds as well as free from grain of other varieties. This is seldom attainable when seed corn is purchased of the farmer who grew it, even when he has grown it from the best and purest sample; for under ordinary circumstances, the corn being often threshed by hired machinery, it is frequently the case that the remains of other varieties which have been threshed just previous are left in the machine, and become mixed with the next sort which may be threshed. We must, therefore, look to the seed merchant, whose especial care and business it is not only to select the best grain, but the purest and truest of its variety, and there never was a time when it has been so easy to obtain selected sorts of Wheat of the highest value in every respect as at the present. Major Hallett of Brighton led the way with his pedigree grain of various kinds, but for some years it had little influence on the mind and management of the

ordinary farmer. It has, however, gradually been "pushed into notice by the seedsmen, a few of whom have with great care improved the various kinds of grain by selection and otherwise, and their endeavours deserve every encouragement.

We must ask the home farmer to consider the nature of his soil, its situation and aspect, as these are the three chief points to be considered by him in choosing the variety of Wheat best suited for his use. Our experience in this matter commenced many years ago, and enables us to say how very difficult it is to decide which of the many varieties offered to our notice is most suitable. We, therefore, recommend the growth by actual experiment and comparison of sorts under the like circumstances; and as the most important farmers of the district in which he may be farming will recommend him varieties which may have succeeded best with them, these ought also to claim his attention. Still, when other varieties are offered it is well to make the comparison, and prove to his own satisfaction which is best—the favourite kind of the locality, or some of the choicest sorts recommended by the seed-corn merchant. Few men will be deterred from this when they know that the most valuable sorts can be obtained in very moderate quantities, although at a somewhat higher price than the ordinary millers' grain, as it will not entail a heavy expense in making the experiment and comparison. If it succeeds he will be in possession by his own growth of valuable seed corn for his own use in the next and following seasons if due care is taken by keeping the grain unmixed in threshing, after which he may be his own judge upon the important question of seed corn.

At the present time we have the advantage of a choice of seeds which did not exist formerly, for the first Wheat we sowed in 1826 was a Scotch Wheat very much like our present variety called Nursery, except that it was of a pure white berry, but strong in character. We have a sample now grown by us in the year 1835, the produce being 52 bushels per acre; weight, 66 lbs. per bushel old Winchester measure. We also have a sample of our own growth of Chidham Wheat, the produce of the year 1844. It is of splendid quality and very true in character, and at that time was much sought for by millers intending to make the highest quality of flour required by the pastrycooks and confectioners, and it always commanded the highest price, especially in the markets of Guildford and Uxbridge, at that time the two highest markets in England. Although we grew this Wheat in one of the finest seasons ever known, the yield did not meet our expectations, as we only obtained 40 bushels per acre, although the straw was a very full crop. Our next sample which we have preserved was called Morton's Red Straw White, and introduced by Lord Ducie on his farm at Whitfield in Gloucestershire. The redness of the straw, however, disappears when ripe. Our sample is a fine white grain of excellent quality, weight 67 lbs. per bushel; and as we do not know the origin of Oakshott's Champion White it seems to us probable that it was selected from Morton's White, as it resembles it both in growth and grain.

We must now refer to sorts which we have grown within the past twenty-eight years, and we shall refer more particularly to the varieties which have proved to be advantageous, and which can at present be obtained from the seed-corn merchants of superior and selected stocks. The Red Nursery is a good millers' grain, and well adapted for sowing on those soils which are subject to loss of plant, as it is a very hardy variety, and can be obtained now as a selected sample. The Rough Chaff Essex, more particularly the Dwarf Clubhead variety, we have found ever since its introduction the most profitable sort we have ever grown, but more especially on the best soils in a high state of cultivation. It is shorter in straw by 6 or 8 inches than any other variety we have ever grown. It is very hardy and maintains a thick plant in severe seasons, at the same time tillers very freely if thinned out by wireworms or otherwise. Some exception has been taken to it

on account of the thick velvet-like covering on the chaff, it being said that it is more subject to mildew; but we find this refers to the chaff only, and not to the straw. It is also credited with sprouting sooner in wet weather. This may be the case in certain western and northern climates, but not in the south and eastern districts of England. We have, however, a good set-off to any difficulty, for the thick close chaff preserves the grain from shedding in windy weather in exposed aspects—a matter of great importance in all seacoast districts.

The above variety can be obtained of the various seed merchants. But Mr. Oakshott claims to have introduced an improvement in the Rough Chaff varieties, and offers us his selected Imperial White or Velvet Chaff Wheat, and describes it as having more length in the straw with less velvet on the chaff than the original, and this we are willing to accede to him as better for growth on light land or land not in first-rate tillage. But we prefer the Dwarf Essex to any other when a full crop of straw is expected, as it never suffers from falling or lodging on land correctly tilled. During the three years past we have the following crops of this sort grown on very thin gravelly soil and seacoast district:—In 1880, fourteen sacks per acre; 1881, twelve sacks per acre; and in 1882, thirteen sacks per acre—of great weight and fine quality in each instance; and we here call attention to the advisability in any selection of the Velvet Chaff of maintaining in all its advantages the short straw and the thick coating of velvet on the chaff, irrespective of any other possible improvement. In making these observations we by no means insinuate that the Imperial Velvet Chaff is not best in some districts, especially on soils not usually throwing much straw, and upon light soils in the midland or sheltered districts, for we should rather prefer it, for the special reason that on such land it is sure to yield full crops of straw and grain of the very best millers' quality. But still we do not name it to the exclusion of the Champion White under the like circumstances of soil and climate.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The season has been generally favourable for carrying out autumn tillage either by horse labour or steam power, and those who have not completed the cultivation of land intended for either Barley, Potatoes, Mangolds, and other root crops next year, may not have the opportunity in the spring should the weather then prove adverse. If we view this matter in another way it must be admitted, in the event of the spring being propitious, there is not time for fallowing and cultivating without a serious delay occurring to the seeding of the crops in the spring. Besides, every practical farmer ought to know that, although the labour of fallowing as regards tillage may be carried out, yet the result and effect will be very inferior compared with that arising from autumn tillage. For instance, if we have couch in the stubbles, unless it is cleared off in the autumn it cannot be so effectually done in the spring should the weather prove ever so favourable; because, in the act of tillage, when the ploughing or cultivating follows closely upon the previous one, the couch is not killed, but is in fact transplanted by being mixed with the soil, and will certainly make its appearance at a future time. We will now suppose that the land intended for Trifolium, Vetches, Rye, and winter Barley has been seeded upon land which was clean; some of these crops, however, have, we find, been eaten by slugs, in which case the sooner another seeding takes place the better, especially as regards Trifolium, for in the second seeding not less than 30 lbs. of seed should be sown per acre; and it is advisable, too, not to sow the same land from which a first seeding has been destroyed by the little white slugs, as they will be surely awaiting another opportunity of feasting on the young and tender plants as soon as they show above ground.

In all cold and flat-lying land the seeding of Wheat and winter Beans must now be anticipated, and the land prepared, so that when the time arrives for seeding it may be done without delay. In the case of Clover or grass leas the land should be ploughed and pressed, using the skim coulter, by which the turf will be buried under the furrow when the ploughman has done his work effectually. We, however, advise that in those cases where the leas were foul and have been broken up with the view of cleaning and destroying the couch, that such land should not be sown with Wheat unless it is ploughed, pressed, and press-drilled at the same time, because if the land is worked down and drilled in the ordinary way the crop is nine times out of ten injured by becoming root-fallen in the summer, caused chiefly by shallow seeding and shrinking of the land, leaving

the rootlets bare. Rather than sow such land with Wheat we should allow the land to remain in the fallow state after being ploughed or ridged until the spring, and then sow with either Barley, Oats, or drege according to the nature of the soil and the climate of the district.

Hand Labour.—The hedge-trimming, especially the White Thorn, should be completed as soon as possible. In some of the enclosed heavy land districts, however, where the ditches are deep, the banks high and broad, and the borders wide, in order to prevent shading of hedges, these, instead of being trimmed, should be cut as closely as possible to the bank, so that the fagging hook or Gorse-cutting scythe may be used for cutting the growth, not only of grass, weeds, and herbage, but also the Maple wood, the Hazel, the Black Thorn; in fact every kind of wood found thereon may with great advantage agriculturally in respect of everything (except fencing) be cut and cleared away twice a year—in May and September. This we have found yields good green fodder for young cattle, dairy cows for the sale of milk, breeding sows and store swine in the yards, so what they do not or cannot eat will still tread into a manure by the animals; in this way we not only obtain food for stock, but by closely trimming the banks and borders effectually keep down and prevent the seeding of all noxious weeds and coarse injurious grasses which contaminate our fields under ordinary or careless management. The women should now be employed in weeding the root crops by hand-pulling and heaping the weeds, for the showery summer has in various cases produced weeds which during the harvest months could not be destroyed by the hoe and are seeded, but by pulling and heaping the weeds will decay, but by hoeing only they drop their seed and keep up a succession. The irrigated meadows should now be got ready to receive the first heavy rains, which are so valuable by flooding them. There is still, we notice in our travels, some aftermath hay about in the cold districts on the meadows; on the arable land Clover seed, too, is still out in many cases. These matters will require men's labour and women also in attending to them and making the most of every hour of sunshine now the days are shorter.

Live Stock.—The contrast in the requirements and management of the different breeds of sheep will now be apparent; for although the tupping season for the Hampshire and other breeds of down ewes as well as the long-woolled breeds is not yet over, still we find that the Dorset and Somerset horned ewes are beginning to drop their lambs, and with liberal feeding will require but little attention as regards shelter if they obtain a dry night lair. We find in our visits to certain districts that the management of swine is frequently very much neglected, not only as regards the mode of feeding and the accommodation for the animals by night as well as by day, but also that the breeds peculiar to certain localities are still maintained, without reference oftentimes as to the improvement which may be effected either by crossing or choosing a new breed of stock. With regard to the capacity of certain breeds for producing numbers and rearing them for killing at an early age of the best quality, it is important to consider these as the leading points or basis of profit; and as far as our experience reaches we find that first crosses are better than the correct maintenance of any pure breed (except for sale as a speciality), and no cross that we have ever met with has exceeded in profit for fattening than the cross of the Berkshire sow mated with the large white Yorkshire boar. These sows are notoriously good mothers and bring large farrows of good-sized stock as a pure breed, but when crossed with the Yorkshire they still bring large and numerous farrows, and as weight for age they cannot be equalled in any way, for the quarter pork as well as the bacon obtained will always supply a good proportion of lean meat of any age or size.

THE METROPOLITAN DAIRY SHOW.

THE seventh Exhibition of the British Dairy Farmers' Association, which opened in the Agricultural Hall on Tuesday last and closes to-morrow (Friday), is probably the best of its kind that has ever been held. The animals are on the whole of high quality, the dairy products excellent, and the appliances almost bewildering by their variety. In the class for Shorthorn cows the Lord Mayor's cup and first prize was won by Mr. Newton Edwards of St. Albans with Daffodil, Mr. Walter, M.P., securing the chief honours in the class for heifers with Duchess V. The Channel Island cattle are prominent by their numbers and quality, the prizes for cows going to Messrs. J. Cardus, Southampton; Le Brocq, Jersey; and Mr. George Simpson. For heifers to Messrs. Corbett, Beckworth, Arnold, and Brideaux of Jersey in the order named. For heifers bred in the Channel Islands the prizewinners were Messrs. Arnold; Simpson, Jersey; and H. A. Rigg, Walton-on-Thames. Messrs. James Fowler and Welford and Sons, are large exhibitors of splendid animals. The Lord Mayor's cup for any other breed was awarded to an Ayrshire shown by Mr. G. Ferme of Roupell Park, Streatham Hill. Mr. Good was the most successful exhibitor of Kerries. Goats, poultry, pigeons, ducks, and bees with apiarian appliances are admirably represented, but the prizes were not awarded when we left the Exhibition.

THE REMEDIES FOR THE AGRICULTURAL DISTRESS.—Mr. A. J. Burrows in his recently published book, "The Agricultural Depression and How to Meet It," thus sums up the remedies for the agri-

cultural distress which has been felt so keenly during the past few years. 1, A fair amount of sun, genial springs, hot summers, and dry autumns. 2, Increased produce obtained by means of larger outlays on a smaller acreage. 3, More home breeding of live stock, and less danger from disease. 4, Keeping only the best classes of stock, and aiming at early maturity. 5, A thorough readjustment of local taxation. 6, More drainage, better accommodation, more care of manures, &c. 7, The reduction of holdings and employment of more capital per acre. 8, Close supervision and more task work. 9, More personal attention to buying and selling, and more care in selecting seeds, manures, &c. 10, Better accommodation for young stock and feeding cattle, and for the making of manure. 11, A fair and equitable Tenant Right Bill, or an improved Agricultural Holdings Act. 12, Longer leases at fair rents, and with proper freedom of cultivation. 13, The introduction of improved labour-saving machinery. 14, More roots and forage crops, more pastures, and consequently more stock and more manure. 15, Greater confidence between different classes, and a determination to work together for the good of all.

POULTRY AND PIGEONS

POULTRY SHOWS AND ENTRY FEES.

WE have never concealed our opinion that there are now far too many poultry shows—i.e., far too many large shows open to the world, and to which all comers are invited. Of local shows confined to particular counties or particular districts and groups of parishes there can hardly be too many. The former, if carried to excess, promote overshadowing of birds, and so impair their health and productiveness. The latter encourage just those classes who need encouragement in poultry-breeding—viz., amateurs who are just taking to the pursuit, farmers and cottagers who wish to know the relative worth and excellence of their stock and how to improve it. Especially are these shows useful when held at the same time as, or in connection with, agricultural meetings. Their further advantage, too, is that they seldom extend beyond one day.

The evils, however, of the over-multiplication of open shows have often been pointed out in our columns, and we are not going to weary our readers with a general repetition of them. Exhibitors have the remedy entirely in their own hands. No one is compelled to overshadow his birds.

The point to which we will now confine attention is the absurdly high fees which are frequently charged for the entrance of birds. This is one of the consequences of there being too many shows. At one time any exhibition of the kind was well attended by the public (they are still so attended in some districts, especially, as we have lately observed, in the south-western counties and South Wales), and the money paid at the gate sufficed to meet most of the expenses. The promoters of them could then afford to be liberal. Now this is all changed. We have beautiful shows of the best birds the kingdom can produce, well arranged and managed in light airy halls of such towns as Bristol and Southampton, yet almost empty. Where the inhabitants of the neighbourhood take so little interest in them they cease to do good. However, ardent local fanciers will seldom recognise this fact, and often, at great sacrifice of time, trouble, and money, attempt to keep them up when the public refuse to do so. This can only be done by raising the entry fees; in fact, by practically making the classes a combination of sweepstakes, with a handsome deduction for the general expenses and management.

We have lately been specially struck by some schedules sent us. We do not for a moment wish to discourage the efforts of any committee; it is seldom that they are not personally losers, and so it would be unjust indeed to write harshly; but we do candidly say what we think—that it is a great mistake to get up schemes for shows when they can only be floated by enormous entry fees utterly disproportionate to the prize money. Many a breeder is deterred from this cause from making a beginning in showing, and a species of gambling in poultry and pigeons is promoted by it. If there were only one or two schedules which we could instance we should hardly like to call attention to them; but the mistake is so general that without risk of being invidious we may, by way of comparison, review several. We put out of consideration such great and famous meetings as Birmingham, the Crystal, and the Agricultural Hall. The entry fees of 8s. or 7s. 6d. for poultry are dear enough, but immense expenses are involved in exhibitions of such magnitude. A "highly commended" or "very highly commended," which is considered a barren honour at most places, is valued in such competition, and adds value to the

noticed specimen; besides, the opportunities of sale offered are not to be despised, and the fact that the exhibits necessarily come under the gaze of thousands of eyes.

We will take some schedules of lesser exhibitions lying before us. Among the more liberal of them we note that of the Manchester and Liverpool Society, probably because the poultry show is a part of the general agricultural show. The prizes in each class (and the classification is good) are £3, £2, and £1. The third prizes are added by some local committee, so we will not take them into account. This leaves £5 for the aggregate of prizes in each class, and the entry fee is 5s.—viz., 5 per cent. on the prize money; this seems to me a very fair proportion. Again, we take Tredgar; here the prizes are £2, £1, and 10s.—viz., £3 10s. in the aggregate; but then there are specials of two guineas given in addition to the prizes for the best specimen in every two or three classes of adults, and of one guinea for every three or four classes of chickens. The entry is 5s., not a much higher proportion than that of Preston. At Nottingham we find a rather higher rate of entry—viz., 3s. 6d. for three prizes amounting to 35s., but then there are many specials from three guineas downwards to be awarded in addition to first prizes. On the other hand, we find that at Merthyr Tydfil the entry fee is 4s. 6d. for each bird, with prizes of 30s., 15s., and 5s., and no extra premium—viz., 9 per cent.; and at Exeter the Committee value as highly the honour of a prize at their first forthcoming show, where a like fee is charged for an equal amount of prize money in the aggregate though distributed rather differently. We might point out further the great difference in the proportion of entry money to prize money between show and show. The cases cited are enough for our purpose. Where a committee do not see their way to arrange a schedule in the proportion of 5 or 6 per cent. entry on the prize money we doubt very much if it is worth while holding a separate show. It is very well to talk about the honour and glory of a poultry prize card being sufficient, but the people who are satisfied with such decorations are as a rule the rich; and glad as we are to interest all classes in poultry-breeding, those who can afford to buy winners are not the class for whom we primarily write. Many a poor man has been led by a first victory with his home-reared chancier to turn more attention to and lay out more money on his poultry yard. Whatever discourages such people does harm, and absurdly high entry fees necessarily do discourage them. The possessor of "certain winners" pays them as a speculation. The diffident beginners hesitate risking so much on a hazy chance.—C.

OUR LETTER BOX.

Rabbits (T. J.).—It is contrary to our practice to recommend dealers; besides, we are not acquainted with the breed you name. Is not the designation a local one?

Victoria White and Uxbridge Wheat (Bailiff).—These are distinct varieties and both very good. The Victoria grows rather taller than the Uxbridge White and has longer heads, but does not always give a better yield of grain.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. September.	Barometer at 32s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Inches.	deg.	deg.	Calm.	deg.	deg.	deg.	deg.	deg.	In.		
Sun. 24	30.055	55.3	52.1	Calm.	52.4	63.4	46.3	77.7	40.3	—	
Mon. 25	29.874	58.8	55.9	E.	53.0	68.1	49.3	111.9	40.4	—	
Tues. 26	29.493	56.6	54.0	N.E.	53.6	62.9	49.4	95.6	41.2	0.040	
Wed. 27	29.239	53.7	51.3	E.	53.6	61.4	47.9	93.6	40.7	0.051	
Thurs. 28	29.702	51.3	47.3	N.W.	53.2	61.7	42.0	109.7	37.8	0.856	
Friday 29	29.304	55.1	54.3	S.W.	53.8	57.1	49.7	80.7	46.0	—	
Satur. 30	29.945	50.2	49.0	S.	53.3	62.4	43.3	73.4	38.7	—	
	29.659	54.4	52.0		53.3	62.4	43.8	91.8	40.7	0.947	

REMARKS.

24th.—Fine pleasant day, but not very bright.
 25th.—Fine bright day.
 26th.—Cloudy day, with one or two slight showers.
 27th.—Cloudy day, with a shower in the afternoon.
 28th.—Beautiful spring-like day; cloudy evening; rain at night.
 29th.—Heavy rain early; dull damp morning; fair afternoon; cloudless night.
 30th.—Damp cloudy day, with frequent slight rain.

On the whole an unsettled and rather showery week, but not so wet as would appear from the total rainfall, as a very large proportion of it fell during the night of Thursday. Temperature very near the average, and remarkably accordant with that of the preceding week.—G. J. SYMONS.



12th	TH	19TH SUNDAY AFTER TRINITY.
13th	F	
14th	S	
15th	SUN	
16th	M	
17th	TU	[Two days. Sale of Plants at the Sunbury Nursery by Protheroe & Morris. Sale of Bulbs at Stevens's Rooms, Covent Garden.
18th	W	

VARIETIES OF PEACHES AND NECTARINES.

AS the time has arrived for planting these from the nurseries, it has occurred to me that a few remarks upon the merits of old and new varieties might prove acceptable to many readers. At any rate I shall open the subject, both because I always enjoy writing upon and comparing the relative values of different varieties of fruits or vegetables, and also because my remarks may elicit the opinions of others corroborative of or in opposition to my own experience: I do not propose to confine myself exclusively to present experiences, but shall allude to what has come under my notice in former situations and also in the gardens under the charge of practical men.

There is no doubt the introduction of late years of remarkably early varieties of these two fruits has much simplified their culture, as we are now able to secure very early crops without much hard forcing, this in some instances amounting to a considerable saving in fuel. Unfortunately the fruit of several of the Peaches more especially, for which we have to thank the late Mr. Rivers, are small in size—in fact are oftentimes below medium, this consequently rendering them of much less value than would otherwise be the case. There is no disputing the fact that not only must we grow heavier crops than of old, but the size of the fruit must in nowise be diminished. Small and colourless fruit are of comparatively little value, especially in the markets, and for this reason such varieties as Early Beatrice, Early Louise, Early Albert, and Early Alfred will never be grown extensively. At the same time one or more of them ought at present to be included in every collection, whether where early forcing is resorted to, where only one house is devoted to Peach and Nectarine culture, or where they are grown exclusively on the open wall, simply because their extreme earliness insures a more lengthened supply than was possible at one time.

On the open walls in Middlesex I have grown good-sized specimens which perfected fair crops of the four varieties above mentioned, but taking into consideration our limited space, the conclusion arrived at was that we had at least two varieties too many. Early Beatrice, being decidedly the earliest, was retained; so also was Early Louise, this being about a week later, larger fruited, and of superior quality to the former. Early Albert and Early Alfred ripening about the same date as the latter did not equal, so far as quality was concerned, the glowing descriptions given of them by competent authorities; in fact, to form a succession to Early Beatrice I now prefer Hale's Early, this to be followed by Early Grosse Mignonne. Hale's Early has proved disappoint-

ing to some growers, simply because they received a spurious form. The true variety, such, for instance, as has been grown for several years by Mr. Austin of Ashton Court near Bristol, grows freely, is very early, and the fair-sized fruit are highly coloured and agreeable, though not remarkably rich in flavour. This and Alexander, another American variety, if all accounts are true, will eventually supersede the early English-raised varieties. I find Alexander grows most satisfactorily, and have confidently planted it in the early house to take the place of worn-out older kinds. Early Rivers I am unacquainted with. It is described as being the "finest early Peach in cultivation," and I should be glad of further information concerning it, and also the extremely handsome *À Bec*. Early York does not succeed well in the open here, as it is much attacked with mildew, and the fruit lacks sweetness. This and Acton Scott, which at one time was particularly useful for an early supply, may well be struck out of the catalogues, as they are not now required. Crawford's Early is very distinct, the fruit being large, of a rich lemon colour, tinged with pale red next the sun; but I am not favourably impressed with the quality, as, although melting and juicy, it appears to lack briskness—in fact, is rather flat. Exquisite, also of American origin, much resembles it in general appearance, but is a fortnight later. I recently found on testing that it was scarcely so exquisitely flavoured as the name would suggest. Both look well on the exhibition table.

Of the various main-crop varieties I am acquainted with I am of opinion that few equal and none surpasses Grosse Mignonne. I have grown it and its synonyms Neal's Purple, Royal Kensington, and Padley's Purple under glass and in the open in four widely separated counties, have seen it growing in many more, and in each instance it proved most serviceable. It possesses a good constitution, sets freely, the fruit swells to a good size, is highly coloured, and sufficiently melting, rich, brisk, and juicy. Bellegarde, slightly later, is more popular among exhibitors and growers for market, and no collection may be said to be complete without this extremely highly coloured variety. According to my experience, however, it is less vigorous and scarcely so good in quality as the foregoing. Royal George is, perhaps, the best known second early or main-crop variety, and probably when in good condition there is no higher-flavoured delicious Peach cultivated. Unfortunately this again is very liable to mildew both in a young state and also when well established. This is especially the case when grown in unheated houses and on the open wall. One of the best and most profitable trees we have in a late house is labelled Millett's Mignonne, and this I find to be synonymous with Royal George. Noblesse is one of the most delicious Peaches grown, but it often lacks colour, and appears to be of weakly constitution. Like other large-flowered varieties the blooms are deficient in pollen, and a good set is not easily secured. I have seen it very good in second early and late houses, but never particularly good on open walls. Chancellor is now seldom met with, and I am not surprised at it, as I find it comparatively worthless; in fact, this and Lord Palmerston have turned me against varieties the flesh of which is very deep red next the stone. I have given both a second trial, but although the trees have the best positions in the houses they are both rooted out. Lord Palmerston is remarkably handsome when in flower, and the fruits grow to a great size; but for dessert purposes it is worthless, and not particularly

good in tarts. I may be somewhat singular in my experience with it, as I hear it secured first honours at the recent grand fruit show at Edinburgh. The decision, however, I was informed was a surprise to many practical gardeners. Red Magdalen here forms a handsome healthy tree, and is very productive. The fruits do not attain a great size, and are not remarkably good in quality. Princess of Wales proves excessively vigorous in a second early house, and good crops are not easily secured. The fruits attain a great size, but are a rather sickly yellow in colour, and not always of the best quality. It is of somewhat the same parentage as Lord Palmerston, and very red at the stone. In our case it will be gradually cut away in favour of Walburton Admirable. The latter, though presumably a late variety, succeeds admirably in the second early house. It grows vigorously without the growth attaining objectionable grossness, sets fairly well, and swells a heavy crop of large handsomely formed round fruit; colour, however, is generally wanting. All who have tasted fruit from this tree express themselves delighted with its superior quality. It is rich, juicy, and melting, and deliciously cooling in a marked degree.

Barrington is grown for a late supply both under glass and on the open wall, but I am not particularly enamoured of it, as many of the fruits are in the habit of falling before being quite ripe, and in this state prove quite sour. Synonymous with this variety is Buckingham Mignonne, but the tree we have under this name behaves no better than the rest. Sea Eagle I hear highly commended, and should be glad to learn further of this presumably good late variety.

As will be seen, I have not attempted to minutely describe the distinctive flavours of the different varieties of Peaches; and although Nectarines still more widely differ in this respect, I must not trust to memory, nor indeed to my taste, in describing these. The best well-known variety is Elruge, but I prefer the Downton to it, as this I find more robust, the fruit larger, very highly coloured, excellent in quality, and it will continue to be grown to succeed Lord Napier. The latter I consider to be the most valuable of Mr. Rivers' introductions, as it is found the earliest and very good wherever grown. It is not so highly coloured as is desirable, green largely predominating, especially early in the season, and I have seen but few notable exceptions. The flesh is melting, juicy, brisk, and sweet; Pine Apple, however, is the most delicious of all Nectarines, and it also possesses a good constitution. It is rightly said to be an improvement on Pitmaston Orange, as with us the latter is inclined to crack, and is not so highly coloured or richly flavoured as the other. White Nectarine seldom ripens to perfection, and is not worth growing. Balgowan is one of the best for wall culture, especially as it is hardy and vigorous. The fruits are large and attractive in appearance, and generally sweet and juicy. I have not tried it under glass. Prince of Wales, I am credibly informed, is not a very robust variety, but is much liked by a friend who grows it on a light soil and in a warm position. The fruit is rather deceptive in appearance when ripe, as the skin is nearly green, with a little red next the sun; I was, however, agreeably surprised on tasting it, as it is much better than it looks. For a late supply Victoria is much liked by some. At Wilton House, near Salisbury, it proves very free-growing and serviceable, and is considered much superior to the Stanwick. Hunt's Tawny, unfortunately, is of poor quality, otherwise it has much to recommend it, especially for open-wall culture. I have known it to succeed where all others failed.—W. IGGULDEN, *Frome*.

CONSERVATORIES IN SUMMER—GESNERIAS.

As a rule, conservatories and other structures in which flowering plants are expected to be found are the least satisfactorily furnished during the summer and early autumn months. In winter there is no lack of plants for rendering those structures attractive, while in the spring the chief difficulty is often how the plants at disposal can be arranged effectively, so great are the numbers; but as summer approaches its zenith and merges into autumn the plants that are usually flowering in conservatories may generally be found in better condition in the open air.

It will not be denied that conservatories, to be to the fullest extent agreeable, should be furnished with plants dissimilar from

those which abound in the flower garden. Even Roses, beautiful and admired as they are in pots in the spring, are not longed for under glass in summer, such having at that time a thin, worn, and washy appearance in contrast with the health of the examples, massive and rich, which luxuriate at the same time in outdoor beds and borders. It is the same with Pelargoniums of the zonal type; bright and varied these useful plants are, but to see them in fullest beauty under glass we must have them in their best garb from November till June, not from June till November. Rich, luxuriant, well-cultivated examples during what may be termed the dull period of the year command admiration; but crowded in conservatories in the summer, dried and drawn, with withered leaves and dropping petals, they do not invite a second glance. Instead of being attractive there and then they are repellent. Plants of a totally different character are requisite for furnishing houses effectively from July onwards, and thus we have recourse to Ferns and sundry fine-foliaged plants, with, in their season, Tuberous Begonias, which combine elegance with brightness and chasteness; Achimenes, cool yet cheerful; and Gloxinias, incomparably the most beautiful of all dwarf-growing plants, but seldom fresh after July. In addition to the plants named, and to continue the display beyond them, so as to meet the Chrysanthemums and winter zonals, we want something, not as mere makeshifts for filling a blank and occupying space, but plants possessing intrinsic and undeniable elements of beauty—pleasing habits, handsome foliage, and elegant yet rich and variedly coloured flowers in abundance. These we have in Gesnerias, or, as they are known by continental nurserymen who have raised so many beautiful varieties, Nægelias.

No one who has seen the establishment of Mr. Van Houtte near Ghent during August and September, and inspected the thousands of Gesneriaceous plants there flowering, can fail to have been impressed with their beauty and precise adaptability for summer decoration. Stately yet sturdy in habit, with the central stem and branching spikes covered with flowers—crimson, scarlet, orange, yellow, pink, rose, blush, and white—relieved by magnificent foliage, these plants are candelabras of beauty. Yet how seldom we see them grown as they should be in this country. Possibly they may be kept in the background, because they are rarely staged at public exhibitions, less seldom submitted for certificates, and thus are not being constantly "mentioned" in the press. But Gesnerias, or Nægelias, are not exhibition plants—their nature is too fragile to enable them to travel well. They are essentially home plants, and those who have them and grow them well possess a great advantage over those who do not possess them, and who desire to have attractive houses during the period in question. Yet while they will not endure the rough treatment that is inseparable from exhibiting, they are by no means transient when grown for the home stage and kept there; on the contrary, they continue attractive for weeks, and with a sufficient number of tubers, and starting them periodically, flowering plants may be had if needed all the year round. Indeed, although prominent attention is now given to the plants for summer decoration, some of them are not surpassed by any plants in existence for rendering cool stoves and warm conservatories brilliant in the depth of winter. Those who have not seen a houseful of such forms as *G. cinnabarina*, *G. exoniensis*, and *G. refulgens* during January and February have a floral treat in store if they will obtain these kinds, the former especially, and grow them well. They will have fiery pyramids surpassing even Poinsettias, dazzling as a mass of those plants is admitted to be. This, however, is a digression, but will be pardonable as showing the great usefulness of these too much neglected plants.

Only those who have hothouses can have a display of Gesnerias in winter, but all who have a Cucumber frame in which to start the tubers and establish the plants, and a greenhouse or close pit to grow them in, may have a rich late summer or early autumn display just when indoor flowers are scarce, while the plants will fade and can be removed by the time the space is required for storing for winter plants that have until then been kept outdoors or in cold frames. Thus, while Gesnerias are attractive and serviceable they are also accommodating, as after growth has ceased and the plants withered the pots can be stored under the stages until the time for starting the tubers again comes round. In their dormant state, however, they are not safe in a very cold position, and should not long remain in a house where the temperature falls below 50°.

As to culture, they require the same general treatment as Gloxinias—namely, light, free, gritty soil for starting the tubers, and care in watering the young plants; stronger and richer soil afterwards, subdued light, a moist genial atmosphere, no sharp dry currents of air, and never to permit the plants to be rootbound before they are placed in the pots in which they are required to

flower. For summer flowering the tubers should be started with Gloxinias and Achimenes, or a trifle later, say in April; for winter and spring flowering in July or early August.

As to varieties that are good they are very numerous, and as long lists are not infrequently more perplexing than useful, only half a dozen varieties for summer shall be named now—the most distinct in the collection now flowering at Chiswick. It was the inspection of the bright group there that prompted these notes; and thus the old garden proves its usefulness in not only testing things that are new, but in showing the merits from time to time of plants that are generally overlooked or neglected. There is nothing now so attractive under glass in the Royal Horticultural Society's Garden as the Gesnerias or Nægeliæ, and the following are among the best in the collection.

Penelope.—Salmon rose tube, deep rose segments, white and mottled crimson throat; fine spikes and good habit. Very effective.

M. Pollux.—Rich glowing rosy crimson tube, with paler mottled segments; fine symmetrical spike. Very pleasing.

Franklin.—Deep velvety scarlet tube, throat and lobes mottled with white. Neat habit.

Horace Vernet.—Orange scarlet, brighter than the preceding with whiter lobes; dwarf habit. Rich and glowing.

Brèguet.—Pale rose tube with deeper lobes mottled with white. A strong grower with good spikes. Very useful variety.

Jeannot.—Flowers rich uniform chrome yellow, symmetrical spike; very rich dark velvety foliage, the contrast in colours being very striking.

It should be remarked that all the varieties named have handsome foliage, this adding materially to the attractiveness; indeed it is a question if there are any plants that possess in combination the three qualities—beautiful leaves, bright attractive flowers, and a pleasing habit of growth, more markedly than those under notice; hence they are worthy of record here, and for growing for the better embellishment of conservatories in summer.—EXPERIENTIA DOCET.

NOTES ON PEARS.

To have Pears in good condition through the winter months they must be grown on walls, except the early kinds, which to my mind produce fruit of much better flavour, if not quite so large, on espalier and pyramid trees. Pears that are in season from November onwards should be grown on walls having south or west aspects. I think an east aspect—although I have had the management of Pear trees on such aspects—had better by far be planted with Plums, as it must be a favourable season to obtain good crops of Pears there. The ground for Pears should be prepared in the same manner as recommended for Apples in a former article (page 291), and the trees planted in the same position of the garden as recommended for Apples.

As to the stocks employed for planting, I shall recommend the Quince, as in my experience it is the best stock, and comes into full bearing much sooner than trees do that are worked on the Pear stock; but the trees must be well attended to. Some people think that Pears on the Quince are short-lived. If the trees have not been worked low enough or not planted in properly prepared soil they are; but if the ground has been well prepared before planting, and the trees well attended to as regards surface-dressing and adding fresh soil to the roots when needed, they will succeed. Be careful to select trees that have been worked low enough, so that the union of the stock and scion is beneath the surface.

Some persons may say they have handsome trees on the Pear stock that bear annually large crops of fruit. No doubt they have. I have seen such trees, but they require a much larger space than the others; besides, as I have mentioned above, they do not commence bearing nearly so soon. Some kinds I would plant on the Pear stocks, as they do not succeed so well on the Quince, such as Williams' Bon Chrétien, Winter Nelis, Easter Beurré, Knight's Monarch, and Beurré Clairgeau. The latter as a rule is not worth eating, but it does for a show Pear. Marie Louise succeeds both on the Quince and Pear stock.

Pears on the Quince stock for walls or espaliers should be planted 12 feet apart, pyramids 6 feet apart, and when they almost touch each other every alternate one may be taken out. I would also recommend a cordon Pear wall to those who require the greatest number of varieties in a given space. These should be planted 18 inches apart. The first season train them at an angle of 60°, the next season bring them down to 45°, or at least all that have grown freely. These may be kept in good health for a number of years if not overcropped, the roots being at the same time surface-dressed, and at intervals of a few years have

good turfy loam placed round them after the old inert soil has been removed.

The following are useful kinds for succession. Early Pears for pyramids or espaliers—Beurré Giffard, Williams' Bon Chrétien, Beurré d'Amanlis, Beurré Hardy, Beurré Superfin, and Pitmaston Duchess. The following for south or west walls—Marie Louise, Doyenné du Comice, Beurré d'Aremberg, Josephine de Malines, Winter Nelis, Glou Morceau, Passe Crassane, Knight's Monarch, and Bergamotte Esperen.—A. YOUNG.

SINGLE DAHLIAS AT TOTTENHAM.

FIVE acres of single Dahlias in bloom has not yet become so common a sight as to rank amongst the things which tire by their sameness and repetition. Probably, indeed, the display now provided in Mr. T. S. Ware's Hale Farm nurseries has never been equalled either in extent and beauty, and it may therefore be fairly considered as unique. It is doubtful, also, if so extensive a display will be again seen, for the object of planting so many has been simply 'a utilitarian one—that of selection—which, having been accomplished, those excluded from the place of honour will be promptly destroyed. Thus another season the stock will be much smaller, including only the finest and most distinct amongst hundreds of seedling forms, many of which are the results of crossing with the best of the types now in cultivation. As might be readily imagined, the variation in colour and form of the flowers, habit, &c., is very great; all shades of colour, from the deepest maroon through scarlet, orange, and yellow to white, are represented, the flowers varying in form from the star-like earlier type to the broad rounded florets and symmetrical flower of the handsome White Queen. In habit, too, there is every gradation from the most slender and graceful to the most robust and compact; but all the selected forms agree in a remarkable floriferousness, though even amongst the best some surpass others in this respect. It is not easy, however, to select a few where all are so good, but the following amongst the novelties are especially worthy of note:—Darkness, rich deep crimson; Duke of Teck, fine mauve tint, dwarf; Francis Fell, warm deep purple; Harlequin, deep rose banded with purple; Lutea grandiflora, Sunflower and Yellow Queen, the best yellows, of great excellence, fine flowers, and very free; Mauve Queen, beautiful shape and soft tint; Nora, pink, bushy; Thalia, rosy, very free and dwarf; William Gordon, pink and mauve shaded; Rob Roy, brilliant scarlet; and White Queen, the finest white. Of several seedlings raised from Paragon Pantaloon is the best variety, very distinctly marked, tipped with white. Amongst the older but not less beautiful forms the following dozen include the leading varieties: Ascalon, deep rosy purple; Beauty of Cambridge, intense crimson, very handsome; Fusilier, white shaded pink; Painted Lady, delicate pink; Pompeii, rich crimson; Gracilis, ardens, elegans and perfecta, scarlet and crimson forms of that elegant Dahlia; Orangeman, deep orange; Paragon, maroon edged with purple; and Wilmott, peculiar rosy tint. To these may be added the Dahlia Zimapani, also known as Bidens atro-sanguinea, and Cosmos diversifolius atro-sanguineus, a small-flowered form which is not considered as a true Dahlia, though it much resembles that genus in all respects. It is similar in habit to *D. glabrata*, but has deep maroon, almost black flowers.

An experiment has been made in this nursery, the success of which deserves attention, as a similar practice might be advantageously adopted in many gardens. A number of the single Dahlias were planted in a bed, and when the shoots became of sufficient length they were pegged down closely to the surface. The lateral growths subsequently made, with the points of the stems turning upwards as they advanced, have now clothed the bed with abundance of flowers a foot to 18 inches or 2 feet above the soil. In this way they are seen to excellent advantage; and further good results are observable, for the strong-growing varieties, which under the ordinary system are frequently so luxuriant that few flowers are produced, are sufficiently restricted by pegging them down to greatly increase their floriferousness. Some charming examples of autumn bedding might be produced by various applications of this idea, which will be more extensively tried at Tottenham another year.—VISITOR.

THE ROSE ELECTION, 1882.

It was rather to be expected that any attempt to arrest the introduction of "too much alike" Roses would not be universally popular. This, I doubt not, many feel. Having all of us our own likes and dislikes, and with the natural pertinacity of us islanders for our own opinions, I suppose some of us think that one or other of the bracketed "too much alike" Roses of the National Rose

Society's catalogue is hardly dealt with. Personally I rejoice that some attempt has been made to stay the introduction of novelties at novelty prices, that are scarcely to be distinguished from old friends except by their clothing. If we say that two persons are very much alike we mean that the face and features are similar;

and however dissimilar the clothing and dress may be, we still consider them alike. So it seems to me with the Rose: if the blooms are so similar as to be taken for the same, the habit and foliage are surely secondary matters. Personally, then, I congratulate the compilers of the National Rose Society's catalogue on their attempt and the lines on which they have gone. To small growers it would indeed be an advantage if every Rose worth cultivation and not considered "too much alike" was certificated from the National Rose Society's Committee, and, at any rate as regards new introductions, some such scrutiny might be advantageous.

This present election will serve to show out of this class of Rose the most generally useful, and this will certainly prove advantageous to all beginners. Those limited in ground and pocket may select the better of the set and discard the rest. The catalogue of the National Rose Society must, however, as it appears to me, become an annual or biennial at the least, and taken as an exhibition catalogue it will surely need some additions. Only 166 H.P. Roses are named in the whole catalogue, counting all those named "too much alike" or not. In former elections the number of Roses named has amounted to close on two hundred varieties; and although by the sub-Committee's first resolution very tender Roses or those of "extremely delicate growth" are almost excluded, yet it seems to some amongst the electors, and I confess to joining the number, that the list of exhibition varieties must be extended if the catalogue is to be considered complete. Whilst stating this as evidence on the part of some electors that the list of Roses considered exhibition varieties should be more comprehensive, I may also state that some of the electors have urged that future catalogues should go further in the way of classification on the "too much alike" plan.

It will, I think, be generally conceded that A. K. Williams is by far the greatest acquisition that rosarians and Rose-lovers have received for many years. Last year, when under five years old and probably but slightly known by some electors, it nevertheless at the first attempt obtained a position amongst the leading dozen. This was no slight proof of its excellence. From the tenor of some electors, and my experience agrees with them, it is not as robust as one could wish, but others have advanced an opinion exactly the reverse. I trust the future will prove the fears groundless, for certainly this variety is a glorious flower, perfect in form and brilliant in colouring. In commenting on the election of 1881 in the "Rosarians' Year-Book" I expressed the thought that this variety would be that which would in a few years contest with the faultless Marie Baumann the pride of place. I little thought the prediction would so speedily be verified. For many days the returns placed the pair neck and neck, and only at the end of the papers was the old queen reinstated in that position which she has held for some years. Even the greatest admirers of A. K. Williams will allow that in one respect the lady is superior—she gives a larger proportion of exhibition blooms throughout the season. So amongst the Roses as amongst the human race, "*place aux dames*."

Altogether there are sixty-six electors, the following counties being represented—viz., Kent by nine; Surrey, eight; Hereford, five; Essex, Herts, and Sussex have each four; Cambridge, Cheshire, Devon, and Oxfordshire are represented by three; Glamorgan, Norfolk, Notts, Wilts, Warwickshire, and Yorkshire have each two; whilst one return has been received from each of the following counties—viz., Bedford, Berks, Derby, Durham, Gloucester, Leicester, Lincoln, and Somers-

RESULT OF THE POLLING.

Position in General Election 1881.	No.	Name of Rose.	Date of Intro- duction.	Paiser's Name.	Amateurs' Votes.			Total.	Nursery- men's Votes.			Total.	Grand Total.
					A	B	C		A	B	C		
1	1	Marie Baumann	1863	Baumann ..	40	0	0	40	25	1	0	26	66
11	2	A. K. Williams	1877	J. Schwartz ..	39	1	0	40	25	0	1	26	66
2	3	Alfred Colomb	1865	Lacharme ..	39	1	0	40	22	3	1	26	66
10	4	La France	1867	Guillot, fils..	35	5	0	40	22	3	1	26	66
3	5	Baronne de Rothschild ..	1867	Pernet	34	5	1	40	21	3	2	26	66
		Charles Lefebvre	1861	Lacharme ..	38	0	0		17	3	1		
4	*6	Marguerite Brassac	1875	Brassac	2	0	0	40	1	0	0	25	65
		Paul Jamain	1878	Jamain	0	0	0		3	0	0		
5	7	Marquise de Castellane ..	1869	Pernet	27	9	4	40	7	12	5	24	64
6	8	Duke of Edinburgh ..	1868	Paul & Son..	23	15	2	40	7	13	4	24	64
12	9	Etienne Levet	1871	Levet	26	11	1	38	13	7	3	23	61
9	*10	Marie Rady	1865	Fontaine	22	11	6	39	5	12	5	22	61
		Comtesse de Choiseul..	1878	Moreau	0	0	0		0	0	0		
20	11	Capitaine Christy	1873	Lacharme ..	11	16	10	37	9	8	7	24	61
7	12	Louis Van Houtte	1869	Lacharme ..	26	9	3	38	10	5	7	22	60
15	13	Dr. Andry	1864	E. Verdier ..	1	22	15	38	10	5	7	22	60
27		Ferdinand de Lesseps..	1869	E. Verdier ..	0	6	11		3	5	2		
		Maurice Bernardin	1861	Granger	0	3	4	37	1	3	1	23	60
69	*14	Exposition de Brie	1865	Granger	0	4	4		2	0	1		
48		Sir Garnet Wolseley ..	1875	Cranston	0	2	3		1	2	2		
14	15	François Michelon	1871	Levet	11	17	6	34	6	13	6	25	59
16	16	Madame Victor Verdier ..	1863	E. Verdier ..	8	14	15	37	5	8	9	22	59
46		Marie Finger	1873	Raimbaud ..	4	11	7	38	1	5	2	20	58
45	*17	Eugénie Verdier	1869	Guillot, fils..	8	2	6	38	5	3	4	20	58
17	18	Comtesse d'Oxford	1869	Guillot, fils..	8	21	10	39	5	5	9	19	52
13	19	Mons. E. Y. Teas	1874	E. Verdier ..	8	18	12	38	5	6	8	19	57
22	20	Madame G. Luizet	1877	Liabaud	23	11	2	36	10	7	3	20	56
19	21	Horace Vernet	1866	Guillot, fils..	7	15	12	34	7	7	8	22	56
23	22	Senateur Vaisse	1859	Guillot, père	3	17	15	35	5	8	8	21	56
18	23	Dupuy Jamain	1868	Jamain	5	19	12	36	5	6	7	18	54
20	24	Marg'rite de St. Amand ..	1864	Sansal	1	2	24	27	7	12	5	24	51
28	25	Duke of Wellington ..	1864	Granger	0	6	27	33	1	3	14	18	51
26	26	Xavier Olibo	1864	Lacharme ..	1	10	19	30	3	3	12	18	48
30	27	Beauty of Waltham ..	1862	W. Paul	2	6	20	28	1	6	12	19	47
47	28	Annie Wood	1866	E. Verdier ..	1	7	23	31	2	1	10	13	44
54	29	Duchess of Bedford ..	1879	Postans	6	7	11	24	1	6	12	19	43
24	30	Comtesse de Serenye ..	1874	Lacharme ..	0	8	12	20	3	6	11	20	40
37	31	Camille Bernardin	1865	Gautreau	1	8	18	27	1	4	8	13	40
25	32	Reynolds Hole	1873	Paul & Son..	0	11	11	22	1	6	11	18	40
36	33	Duch. de Vallombrosa ..	1875	Schwartz	2	5	14	21	3	5	9	17	38
49	*34	P. Camille de Rohan ..	1861	E. Verdier ..	0	1	14	22	0	0	11	16	38
88		La Rosière	1874	Damaizin	0	0	7		0	0	5		
31	35	Star of Waltham	1875	W. Paul & Son	1	5	18	24	5	1	7	13	37
41	36	Le Havre	1871	Eude	1	8	20	29	0	1	6	7	36
34	37	Fisher Holmes	1865	E. Verdier ..	0	5	21	26	0	3	7	10	36
66	38	Countess of Rosbery ..	1879	Postans	0	5	15	20	6	3	6	15	35
50	39	Marie Verdier	1877	E. Verdier ..	3	1	15	19	2	8	6	16	35
40	40	Abel Carrière	1875	E. Verdier ..	2	8	15	25	0	3	6	9	34
55	41	Victor Verdier	1859	Lacharme ..	1	3	17	21	0	2	11	13	34
33	42	Pierre Notting	1863	Portemer	0	4	17	21	1	2	8	11	32
46	43	Duchesse de Morny ..	1863	E. Verdier ..	1	4	15	20	1	5	5	11	31
38	44	John Hopper	1862	Ward	1	1	15	17	1	2	8	11	28
75	45	Charles Darwin	1879	Laxton	0	3	10	13	0	7	8	15	28
82	46	Duke of Teck	1880	Paul & Son..	3	1	11	15	3	2	7	12	27
63	47	Madame Lacharme	1872	Lacharme ..	0	1	17	18	0	0	9	9	27
75	48	John S. Mill	1875	Turner	1	3	10	14	1	4	7	12	26
51	49	Emilie Hausberg	1868	Levêque	0	6	10	16	1	3	6	10	26
58	50	Général Jacqueminot ..	1853	Rouzelet	1	2	11	14	1	1	9	11	25
56	51	Lord Macanlay	1863	W. Paul & Son	0	4	11	15	1	2	6	9	24
52	52	Mons. Noman	1866	Guillot, père	0	2	15	17	0	0	7	7	24
53		Duke of Connaught ..	1876	Paul & Son..	0	3	11	14	1	0	8	9	23
69		Harrison Weir	1879	Turner	0	2	10	12	1	1	9	11	23
59	55	Duc de Rohan	1861	Levêque, fils.	1	1	13	15	0	1	6	7	22
	56	Prince Arthur	1875	Cant	0	3	11	14	0	4	4	8	22
63	57	Mrs. Baker	1876	Turner	0	4	15	19	0	1	2	3	22
73	58	Edouard Morren	1868	Granger	0	3	14	17	0	0	5	5	22
83	59	Constantin Tretiakoff ..	—	Jamain	0	2	8	10	4	1	5	10	20
57	60	Mrs. C. Wood	1861	E. Verdier ..	0	0	9	9	0	0	11	11	20
	61	Madame C. Crapelet ..	1859	Fontaine	0	3	11	14	0	1	4	5	19
	62	Sultan of Zanzibar	1876	Paul & Son..	0	3	9	12	1	0	5	6	18
79	*63	Penelope Mayo	1878	Davis	0	0	8	14	0	0	3	4	18
		Duchesse de Caylus	1864	E. Verdier ..	0	2	4		0	0	1		
59	64	Mrs. Laxton	1878	Laxton	0	3	8	11	3	1	2	6	17
71	65	Thomas Mills	1873	E. Verdier ..	1	3	12	16	0	0	1	1	17
	66	Elie Morel	1867	Liabaud	0	1	4	5	0	2	9	11	16
87	67	Abel Grand	1865	Damaizin	0	1	8	9	0	0	7	7	16
77	68	Hippolyte Jamain	1874	Lacharme ..	0	1	9	10	1	0	4	5	15
	69	Magna Charta	1876	W. Paul & Son	0	1	7	8	0	2	5	7	15
62	70	Auguste Rigotard	1871	Schwartz	0	1	6	7	0	1	7	8	15
	71	Mrs. Jowitt	1881	Cranston	0	3	2	5	2	3	4	9	14
61	72	Devienne Lamy	1868	Levêque fils	1	1	9	11	1	0	2	3	14
74	73	Marie Cointet	1872	Guillot, fils..	0	3	5	8	0	2	4	6	14
78	74	Thérèse Levet	1866	Levet	0	0	9	9	1	0	2	3	12
68	75	Jean Liabaud	1875	Liabaud	0	2	7	9	0	0	3	3	12

* The Roses bracketed together here are considered as "too much alike." The first named in all cases receives the greatest number of votes.

set. So that no fewer than twenty-four counties are represented. To obviate the difficulties felt by some exhibitors in comparing the relative merits of Teas and Noisettes with the other varieties of the Rose the two classes have been kept distinct. Note must be taken of this, as some of the Roses not of Tea character will necessarily rank rather higher than in the election of 1881.

Thanks to the National Rose Society's catalogue the few missing dates and raisers' names are now nearly complete, and I think these elections may lay claim to the idea of fixing the ages and raisers of many of the varieties.

The table is now well known, and it is only necessary to remind our readers that the first, second, and third columns of figures under both amateurs and nurserymen mean respectively that the votes given represent first twelve, second twelve, and next twenty-four.

Three other Roses received 9 votes, five 8, five 7, six only 6, eight were only named five times, six had 4 votes, nine only 3, twenty-nine had 2 votes, whilst forty-one only received a single vote; and in summing up, counting the "too-much-alike" as a single Rose, 187 Roses have been named. It will be noticed by those persons who possess the catalogue of the National Rose Society that in the seventy-five Roses tabulated are two Roses not to be found in the catalogue—viz., Constantin Tretiakoff and Mrs. Jowitt. The former is with me very distinct; the latter is thought by some to be too much like Marie Rady. Time will show.

As in the last election, the test of first-class votes only, shows a very rapid falling-off; still, this is not so marked as last year. This proves that after all there are but few Roses that command universal homage. I give the first-class votes.

Marie Baumann	65	Marie Verdier }	11
A. K. Williams	64	Dr. Andry	10
Alfred Colomb	61	Dupuy Jamain	8
Charles Lefebvre }	57	Marguerite de St. Amand }	7
La France	55	Senateur de Vaisse	6
Baronne de Rothschild	39	Ferdinand de Lesseps	5
Etienne Levet	36	Duchess of Bedford	4
Louis Van Houtte	34	Duke of Teck	3
Marquise de Castellane	33	Countess of Rosebery	3
Madame G. Luizet	30	Star of Waltham	3
Duke of Edinburgh	27	Duchesse de Vallombrosa	3
Marie Rady	20	Constantin Tretiakoff	3
Capitaine Christy	18	Xavier Olibo	3
Marie Finger	17	Beauty of Waltham	3
François Michelin	14	Annie Wood	3
Horace Vernet	13	Comtesse de Serenye	3
Madame Victor Verdier }	13	Mrs. Laxton	3
Comtesse d'Oxford			
E. Y. Teas			

In each case of the "too much alike" Roses only the highest is mentioned.

It only remains for me to mention the names of the electors, to whom we are all indebted for making returns. It is a stereotyped phrase that I tender them my sincere thanks, but it is truth; to one and all I tender them, and to not a few I feel grateful for their kind appreciation of the work.

Amateurs.—Miss Bulmer, Broadlands, Hereford; Revs. W. Ager, Faringdon; H. B. Biron, Lympne Vicarage, Hythe; C. H. Bulmer, Credenhill Rectory, Hereford; A. Cheales, Brockham, Reigate; H. H. D'Ombra, Westwell Vicarage; E. L. Fellowes, Wimpole Rectory, Cambridge; J. M. Fuller, Bexley Vicarage, Kent; L. Garnett, Christleton Rectory, Cheshire; W. J. Jackson, Stagsden Vicarage, Bedford; F. J. Jenyns, Knebworth Rectory, Stevenage; J. H. Pemberton, The Round House, Havering-atte-Bower; F. Roberts, Scole Rectory, Norfolk. Messrs. G. Baker, Holmfels, Reigate; J. Brown, gardener to G. A. Waterlow, Esq., Great Doods, Reigate; J. Burnside, Farningham; Burrell, Heighington, Darlington; J. Choyce, Pinwall Grange, Atherstone; Evans, Marston, Oxford; Fewkes, Tyburn, Erdington, Warwickshire; F. H. Gall, Hope Cottage, Hitchin; W. J. Grant, Hope End, Ledbury; T. Graveley, Cowfold, Sussex; T. B. Hall, Larchwood, Rock Ferry; W. Harrington, Corbels Tay, Romford; T. B. Haywood, Woodhatch Lodge, Reigate; Hinton, Warminster; E. Mawley, Lucknow House, Addiscombe, Croydon; W. Moore, The Gardens, Coedriglan, Cardiff; G. Mount, Harbledown, Canterbury; L. C. Norris, Trumpington, Cambridge; F. C. Pawle, Northcote, Reigate; J. D. Pawle, Wray Park, Reigate; Ridout, Reigate; A. Slaughter, Jarvis Villa, Steyning; A. G. Soames, Waltham Hall, Grimsby; Sparke, Rooklands, Torquay; J. Tranter, Upper Assenden, Henley-on-Thames; W. H. Wakeley, Macklands, Rainham; E. R. Whitwell, Barton Hall, Darlington—forty.

Nurserymen.—Messrs. Bunyard & Co., Maidstone; Cant, Colchester; Cranston & Co., Hereford; Curtis, Torquay; Davison, Hereford; Dickson & Son, Chester; Durbin, Englishcombe, Bath; Ewing & Co., Eaton, Norwich; Farren, Cambridge; Francis and Co., Hertford; Frettingham, Beeston, Notts; Keynes & Co., Salisbury; Kinmont & Kidd, Canterbury; Jefferies & Son, Cirencester; Laing & Son, Forest Hill; Mack & Son, Catterick Bridge;

Mitchell & Son, Uckfield; Merryweather, Southwell, Notts; Paul and Son, Cheshunt; Perkins, Coventry; Piper, Uckfield; Prince, Oxford; Proctor, Chesterfield; Rumsey, Waltham Cross; Tresseder, Cardiff; and Walton, Exeter—twenty-six.

Messrs. Cooling of Bath also made a return, but it arrived too late—after all the placing was complete—and only their return of Teas could be used. Their return scarcely altered the position of the leading twelve. The Tea Rose election will be published next week.—JOSEPH HINTON, Warminster.

NORTHWARDS.

WHEN we consider that upwards of twenty express trains have rushed from the metropolis to Scotland laden with their living freight every day for the last two months there is some reason for London being what is termed "empty," although a stranger would not know that it is so, and the great rendezvous of tourists in the north full; and when we consider also the wear and tear of London life, and the at times stifling murky atmosphere, there is no wonder that all who can do so should make their escape from it for a time and enjoy the pure breezes of the Heath-clad hills.



Fig. 55.

My escape from the "Modern Babylon" was by the favourite morning express from St. Pancras, a choice that left no regrets, as on the new Settle route is seen some of the grandest, wildest, loneliest scenery that is to be found in England, while at the same time there was no lingering, only four minutes of time being lost in the four hundred miles between London and Edinburgh. I had thought enough had been said about the great Show there, but there appears a disposition to say more. I, however, will leave the debatable theme, and record a few memories of a northern tour.

Edinburgh and its nurseries merit a note in these pages, which are scanned by many a "canny Scot," but these nurseries will be described by another pen than this, wielded by one to whom the establishments are familiar, while I pass on and record brief jottings on the woody slopes of ancient Keir, the mountain gorges of the Trossachs, the wondrous picture of Grapes at Clovenfords, the grandeur of Drumlanrig, and, to change the theme, a scene of sadness—the sick bed of one whose writings in this Journal have awakened a large share of interest during the past few months—"SINGLE-HANDED."

That familiar signature has been missed of late by many, but few can know the reason of its absence, and all will now regret the cause—illness protracted and dangerous. The once strong man, physically and mentally, is stricken down. His gigantic frame is wasted, but

his mind is as clear as ever. Composed, even cheerful, one almost forgets his critical state. Of all who fear he fears the least the issue, whatever it may be. Some words of his I cannot forget—"You may never see me in the flesh again, but I would like to live a few years longer for the poor bairns' sake." It is hard to think that one just in the ripe vigour of manhood will not survive his affliction. We will all hope earnestly that his strong constitution will prove the victor over the serious internal malady; and he may now be assured that on the appearance of these lines a bond of sympathy will be flashed from a thousand breasts towards him and with his family in their lonely Scottish home among the hills. Before proceeding further, as he would be the last to wish us to tarry, and casting aside any depressing feelings since he is so cheerful, we will register an earnest and united wish and prayer for the restoration of "SINGLE-HANDED." And now we change the scene, and in thought go back to

EDINBURGH.

In situation perhaps unequalled, in appearance imposing, this is emphatically a city of contrasts—one part, as Sir Walter Scott has said, "exhibiting the full tide of existence, pressing and precipitating itself forward with the force of an inundation; the other, dark with the smoke of ages, resembling some time-worn anchorite," with the "misty mountain" of Arthur's Seat overshadowing all. In gardening we find contrasts too, at least as violent as can be found elsewhere, for we have close together perhaps the best examples of roof gardening and ditch gardening that are to be found in the kingdom—the former on the top of the Waverley Market, the latter in the grand ravine (once the protecting fosse of the frowning old castle) that stretches along the south side of Prince's Street.

Wonderful is the improvement that has been effected here during the past few years by the skilled city gardener, Mr. McLeod. The deep steep slopes of the great ravine, once covered with scrub and rubbish, are now smooth velvety lawns, with bright groups of colour, chiefly in the carpet style, surrounding the trees, and filling in angles where they show to advantage. This system of decoration when imperfectly carried out or displayed in incongruous positions no doubt merits the scoffs of those whose life work would appear to be to pedantically write it down, but to assail it when well done in positions such as this is vain. The clearly defined bright lines and circles of colour are far more effective as viewed from distant and elevated standpoints, as is the case here, than any mixtures of herbaceous plants could be. There are proper positions for both examples of garden adornment, but the right place for the latter is not in this fine ravine—ye clept the Prince's Street gardens of Edinburgh.

The roof gardening, too, is of its kind excellent. The great Waverley Market, it must be stated, is in a fringe of the ravine, the roof of the building being level with Prince's Street. This is laid out as a garden, and so admirably is it done that a stranger would never suspect that the fine promenade of cement walks, the long curving borders of flowers, the carpet beds, the patch of lawn, and numerous well-filled vases along the balustrades, were arranged on the top of what may be termed a gigantic hall. But they are, and the effect is most pleasing. All forms of decoration are represented here—ribbon gardening, panel gardening, subtropical gardening, carpet bedding, excellent in design and execution, with annuals and herbaceous plants in suitable places in the borders. The bronzed vases, numbering considerably over a hundred, are a fine feature, relieving the flatness that would otherwise prevail. They are not trim and formal, but clothed with a floral drapery of Tropæolums, Sweet Peas, and similar free-growing plants that surround the Cordylines or Aloes that occupy the central position. The character of these vases is fairly represented in fig. 55, and the appearance of such a number in an enclosure of about 150 yards by 60 can be better imagined than described. The garden is surrounded by palisading, and the drainage from the beds is conducted into pipes close to the roof inside the building. They are not seen unless sought for, and the whole arrangement is a great success.

We hear, from time to time, of roof gardening in London as represented by a small conservatory; but all the roof gardens in the metropolis put together bear no comparison with this solitary example at the top of the Waverley Market, Edinburgh. Even in one of the nurseries—Messrs. Downie & Laird's—there is a better, and decidedly more useful, representation of housetop gardening than is to be found in the possession of any "city" firm, but this will be more fully referred to in the following notes that have been placed at my disposal. The civic authorities and Mr. McLeod are to be congratulated on the success in rendering their fine city so attractive, and it is gratifying to learn that their excellent work is widely appreciated. There are other public gardens in the city, but those alluded to must suffice as a type of what is accomplished in the direction indicated.

THE PILRIG AND REDBRAES NURSERIES.

These belong to the well-known firm of Messrs. Dickson & Co. This nursery and seed business has been established in Edinburgh for one hundred years. The great Loudon spent many of his youthful days as an operative here; and it may well be surmised that the nursery occupied a prominent position then, but not more so than now, as all kinds of indoor plants, fruit trees, forest trees, shrubs of every description—in short, everything connected with the garden, forest, and farm, are to be found here extensively and well cultivated. Only some of the main features of the business can be briefly noted. From

the seed warehouse of the firm, No. 1, Waterloo Place, trams run down Leith Walk to the Pilrig Nurseries. Telephone communication also exists between the two, which are a mile or so apart, and this is found to be of the greatest convenience to the firm and customers generally.

The Pilrig Nurseries stand on a fine open space, and there the principal houses and pits have been erected on a commodious scale, alike convenient for working and comfortable for visitors, as a lean-to corridor facing the south-east extends to a length of 180 feet, and from this access is obtained to seven span-roofed houses, which are arranged at right angles, and are 70 feet long each. No. 1 is the Camellia house, and it contains plants from one year old to splendidly furnished specimens 16 feet high clean and healthy. There are also many splendid specimens of Tree Ferns in this house arranged along the centre, and have a very imposing effect. There are also some fine plants of the Himalayan Rhododendrons, and one of the best examples we have seen of *Phormium tenax Veitchianum*. It flowered profusely throughout the summer, and has produced a fine lot of seed. A *Maréchal Niel* Rose, worked on the Briar seven years ago, covers a large area on the roof of this house, and produces large quantities of useful blooms early in spring. No. 2 house is devoted to *Ericas*, *Epacris*, and other hardwooded greenhouse plants, all unusually clean and healthy, and the edge of the stage on each side was fringed with a white *Lobelia* named Pilrig Park. It is a compact grower, good in colour, and a most profuse flowerer. No. 3 house is in two divisions, both compartments being devoted to Ferns, one for propagating young plants, and the other for containing them in a more advanced stage of their growth, all the best known kinds being represented. No. 4 house contains young stove plants—healthy *Crotons*, *Dracænas*, *Aralias*, *Palms*, &c.; and besides many small plants of the popular *Eucharis amazonica* there are some splendid specimens which produce large quantities of their charming flowers two or three times annually. Of climbers there is a choice variety, and a healthy and varied batch of Orchids occupy one part of the stage. A fine stock of the variegated Pine Apple also deserves notice, as it is one of the finest varieties of the kind we have seen. No. 5 house is well filled—in one part with *Gardenias*, or small healthy plants well set with flower buds; and here we found a batch of new *Coleus*, which for size of leaves and chasteness of colours outdistance most other members of this numerous family, and no doubt more will be heard of these in due time. No. 6 house was gay with *Liliums* and double-flowering *Primulas*. The red variety of the latter, known as *Stewartii*, is noticeable for the robustness of its constitution and its free-blooming properties. In this house are also fine batches of *Solanums*, winter-flowering *Heaths*, *Fuchsias*, *Pelargoniums*, &c. The last house in the range, No. 7, is devoted to a miscellaneous collection of hardwooded greenhouse plants, choice in variety and excellent in quality.

The corridor, before referred to, is in four divisions. The first division is filled with a large quantity of young Indian *Azaleas*, brightened with well-flowered *Begonias* and autumn-flowering *Chrysanthemums*. The second is full of various kinds of fine-foliaged plants; and the third is a fernery arranged in a natural style, most of the tables being faced with cork bark, which associates well with the Ferns, and has a very effective appearance. The back wall of this house is also very beautifully decorated with *Lycopods*, Ferns, *Begonias* of the Rex section, *Anthericums*, &c., and the result is in every way pleasing. The fourth and last division is filled with a choice assortment of greenhouse *Rhododendrons*. In addition to the glass houses just noticed there are extensive ranges of span-roofed pits in several divisions of 50 feet each, which are used chiefly for the propagation of the finer Japanese and other Conifers, newly grafted *Rhododendrons* and *Camellias*, which are here worked on an extensive scale. There is also a large seed warehouse here, and an office containing the nursery end of the telephone. Long rows of frames are attached to the general buildings, and are completely filled in autumn, winter, and spring with young stock of Show and Fancy Pansies, bedding *Violas*, *Pentstemons*, *Phloxes*, *Pinks*, *Carnations*, of which many fine varieties have originated here, *Picotees*, and all kinds of florists' flowers. Plants of a new class of *Pinks* are noteworthy for their dwarfness. They are of various colours, and can be grown without tying or staking. They open their first flowers with the dawn of spring, and never cease their production until the autumn frosts come.

An extensive piece of ground is devoted to hardy flowers and herbaceous plants of all the popular kinds, with a fine collection of single and double *Dahlias*. American plants, *Kalmias*, *Ghent Azaleas*, *Menziesias*, and hybrid *Rhododendrons* are largely grown. Hardy *Heaths*, too, are well represented in many large beds, and in a collection such as this some are always in bloom; as many of them flower as freely in December as others do in July. They should be largely grown in private gardens.

A portion of the nursery is occupied with beautiful specimen *Hollies*, including *Golden Queen* and all the best sorts; also other evergreens of all kinds, an excellent assortment of Conifers and deciduous trees, flowering shrubs and fruit trees in varieties, which are found to succeed in the north. *Bothwell Bank Prolific Strawberry*, which we have found superior to *President*, a new variety lately distributed by this firm, was growing in large quantities, and the demand for it is very great.

Redbraes is the name of another Edinburgh nursery belonging to this firm. It is very ornamental in aspect, having a fine pond in the

centre, with an island here and there; and the banks which slope to it are planted with choice specimens of Conifers, but the main quarters are filled with large batches of *Rhododendron ponticum* for game coverts, and Laurels of various kinds, including *colchica* and *rotundifolia*, two of the hardiest and most vigorous varieties of the common Laurel. Japanese Coniferæ were plentiful here, the Golden Box (*B. Fortunei*) being very conspicuous. A number of houses are devoted to the rearing and growth of young Vines, and just now they are full of well-developed canes, short-jointed and well matured, for planting or fruiting in pots. The walls which surround the whole were covered with well-trained healthy Peach, Apricot, and other fruit trees.

The forest tree department is a great and important feature of the firm. The trees are grown in various nurseries on the outskirts of the city, one of the principal places being on the farm of Liberton Mains, three miles to the south of Edinburgh. This farm of 400 acres is occupied by Mr. Robert Black, who, along with his farming, combines market gardening on an extensive scale; and the system adopted by Messrs. Dickson & Co. is to take a piece of land from which some green crop has been cleared, plant it with one or two-year-old seedlings of Larch, Scotch Fir, Oak, Chestnut, Beech, or any other sort of tree they grow in large quantities, and after these have been grown there for two or three years they are ready for the market, and the ground from whence they are cleared is given back to be cropped as farm land. By this system the trees are always planted and reared on fresh ground, which keeps them clean and vigorous. The trees are here also allowed plenty of room for healthy development. We never observed finer plantations of forest trees, but probably some share of this may be attributed to the selection of seed, as the firm gives special attention to this; their Scotch Firs, for example, being collected in one of the finest old forests in the Highlands. At Liberton they also grow their Roses, of which they have an healthy and extensive stock. Some of those budded last autumn have made shoots 5 feet in length.

Notes on other nurseries will appear in a future issue.—J. W.

ORCHIDS IN OCTOBER.

THIS is a good time to examine the *Masdevallias* and repot them. Where large masses have died in the centre they should be shaken out, all the decayed parts removed, and the healthy pieces potted separately. The best material for potting these in is a mixture of peat, leaf soil, broken crocks, and rough sand, with a surface dressing of live sphagnum moss.

Odontoglossum Alexandræ, *Pescatorei*, and others which may require it, should be repotted, or top-dressed with good fibrous peat, surfacing with sphagnum, and just giving sufficient water to keep it fresh.

Plants of *Lælia Dayana*, *L. præstans*, *Cattleya marginata* and *C. pumila*, which have their young growths well advanced, should be removed to the *Cattleya* house, as they will be greatly benefited by a little heat now.

Plants of *Odontoglossum vexillarium* which have not been removed ought also to be shifted to the *Cattleya* house, and likewise *Cælogyne barbata* and *cristata*, which are showing, as the flowers are apt to suffer from the damp atmosphere of the cool house. The night temperatures should now be as follows: East Indian house, 60°; *Cattleya* house, 55°; and cool house, 50°.

Though this is a dull season for Orchid blooms, yet the houses are enlivened by a few plants, amongst the most notable of which are the following:—*Aerides nobile*, with its long pendent spikes of large creamy-white flowers spotted with rose. *Barkeria elegans* with rosy lilac blooms, with a rosy white lip with purple blotch; it lasts in perfection for nearly two months. *Cattleya Schilleriana* bearing olive green flowers sprinkled with brown, with a white purple-veined lip; this does well either on a block or in a pot. *Odontoglossum vexillarium Leihmanii* is a variety bearing smaller but darker-coloured flowers than the other varieties of *vexillarium*. *Oncidium curtum* has chocolate and yellow blooms, with large, bright yellow, chocolate-margined lip. *O. flexuosum* has brown-spotted bright yellow blooms. *O. Forbesii* is bearing numerous yellow-margined chocolate-coloured flowers. *O. oblongatum* has long spikes of bright yellow blossoms; and *O. tigrinum* has yellowish green blooms, with large citron-coloured lip, exhaling a Pine Apple-like odour.—ORCHIDIST.

VALUE OF EARTH-CLOSET MANURE.—“INQUIRER” has drawn attention to the circumstance that on two occasions I have given different amounts of the ingredients to be found in this substance. I may perhaps be permitted to recall that these were arrived at in two different ways. On the first occasion I took Dr. Voelcker's estimate (modified by Dr. Gilbert's) of the value added to soil by passing through a closet in a particular instance; but the soil itself in that case contained a considerable amount of potash, and I credited a portion of this to the excreta. In the second instance I calculated from the average ingredients of excreta alone, with a

small proportion of uric. Hence a discrepancy, which is, however, trifling, except in the matter of potash. Whether Mr. Taylor's soil contained potash or not cannot be told till it is analysed; but my sole purpose was to show that, whether his soil was rich or not, it at all events received an addition which made it a rich dressing *when applied in the quantities which he has informed us he used*. Having shown this in two different ways I have nothing further to add.—J. B. K.

ALPINE STRAWBERRIES.

PERHAPS it may be serviceable to some of your younger readers if I give a short account of a very useful little Strawberry that is grown here—the Alpine, its value consisting in its continuous fruiting. I gathered the first dish in May, and there has not passed one week since but I could have gathered a dish more or less large. I have this day (October 2nd) gathered fruit, of which I send you a fair sample; and if the weather continues mild I shall be able to obtain several more dishes from the same bed. In size and quality the Alpine is, as most persons know, inferior to the general garden Strawberry, but on account both of its earliness and lateness I think it is invaluable and worthy of a place in many gardens where it is not at present grown. The plants of which I write were raised from seed supplied by Messrs. Suttons of Reading three years ago, and their treatment since then has been of the roughest. They were planted in the first piece of vacant ground that was available, which happened to be on a south border; and there they have been ever since, nothing having been done to them except clearing off the runners at different times; but in future I intend for them to have more attention, for I think that a dish of Strawberries at the present season from the open ground is not to be despised. I daresay they would not do equally well in all places, but at least I think they are worth a trial.—J. S.

[This communication reached us with the following note, which we print for the information of other correspondents who may have sent fruit through the post and lost it.

“Returned Letter Office, General Post Office, London.

“Oct. 4, 1882.

“SIR.—I have to inform you that a packet addressed to you containing fruit from which liquid was escaping, injurious to other correspondence, has this day been destroyed, it being contrary to regulations to allow such matter to circulate through the Post Office. Cover and letter sent herewith.—G. R. SMITH, Controller.”]

PHOSPHATE OF MAGNESIA, WHAT IS ITS MANURIAL MONEY VALUE?

IN my first letter on this subject (p. 290) I alluded to the part taken by salts of ammonia and organic matter in aiding the solution in water of phosphates, and in my last (p. 317) I alluded to the wonderful fact that all fertilising elements in the soil must, before they can be absorbed by plants, be again fixed and rendered insoluble by water, or, as Liebig terms it, be physically combined with the soil. In my present communication I propose to enter more particularly into this phenomenon, and inquire into the existing theory of plant-nutrition as taught by Liebig, Voelcker, and other chemico-agricultural writers, for without entering into this question I should be unable to pursue advantageously, particularly to the non-chemical reader, my examination into the value in agriculture of phosphate of magnesia.

In the first of the propositions put forward by Dr. Voelcker to make his present views on phosphates clear, which I quoted in my last, he distinctly refers to his opinion on the physical-combination theory of plant-nutrition; but I shall make use of the writings of Liebig to lay the question before those sufficiently interested in the subject to follow my arguments thus far, not only because he was the first, as I believe, to propound these truths clearly, but because I cannot hope to find any other exposition of them which puts the matter so simply. I cannot do better than refer the reader to Liebig's treatise on the “Natural Laws of Husbandry” or his “Letters on Modern Agriculture” for a perfect view of his reasonings, and I must content myself here with making a few extracts from them. I ought to state, however, that the first discovery of the surprising fact of the fixation by soils of potash, ammonia, phosphoric acid, &c., is due to Professor Thomas Way.

“We have hitherto believed,” says Liebig in explaining the present view of the nutrition of plants, “that plants received their food from a solution, and the rapidity of its effect was in direct proportion to its solubility.” “We believed that water was the carrier of the most remote elements of the soil to the immediate presence of the plant.” “But all this has been a great mistake. We have inferred, from the effect of water and carbonic acid on rocks, a similarity of action in soils; but this conclusion is false.”

"By the simplest experiment anyone can satisfy himself that rain water filtered through field or garden soil does not dissolve out a trace of potash, silicic acid, ammonia, or phosphoric acid." "The soil does not give up to the water one particle of the food of plants which it contains. The most continuous rain cannot remove from the field, except mechanically, any of the essential elements of its fertility." "If rain or other water, holding in solution ammonia, potash, phosphoric and silicic acids, be brought in contact with the soil, these substances disappear almost immediately from the solution; the soil withdraws them from the water. Only such substances are *completely* withdrawn by the soil as are *indispensable* articles of the food of plants; all others remain wholly or in part in solution." "If freshly precipitated *phosphate of lime*, or *phosphate of magnesia*, be dissolved in water saturated with carbonic acid, and filtered in like manner through soil, there will not be found a trace of phosphoric acid in the filtered water. A solution of phosphate of lime in dilute *sulphuric acid*, or of *phosphate of magnesia and ammonia* in carbonic acid water, comport itself in the same manner. The phosphoric acid of the phosphate of lime and the phosphoric acid and ammonia of the magnesian salt remain in the soil." "Charcoal reacts in a similar manner with many soluble salts; it removes colouring matter and salts from solution;" "but the constituents of the soil take part in its action, and hence it must in many cases be quite different from that of charcoal."

"Potash is found in all our land plants, but soda forms only an exceptional constituent of their ashes. From sulphate and nitrate of soda the soil withdraws only part of the soda, but the whole of the potash from the corresponding potash salts." Liebig convinced himself that in a garden soil, rich in lime and $2\frac{1}{2}$ acres in extent, 10,000 lbs. of potash would be absorbed from a solution of silicate of potash, and retained for the use of plants. "A similar experiment," he says, "made with a solution of *phosphate of magnesia and ammonia* in carbonic acid water, showed that a $2\frac{1}{2}$ -acre field would withdraw 5000 lbs. of this salt from such a solution. A loam (poor in lime) produces the same effect."

"These facts give us some conception of the powerful action of soils, and of the strength of their attraction for three of the chief elements of the food of our cultivated plants, which, in consequence of their solubility in pure and carbonic acid water, could not be retained in the soil did the latter not possess this power of attraction."

"There can be no doubt, from the action just described of soil on potash, ammonia, and phosphoric acid, that the majority of our cultivated plants cannot receive out of a solution from the soil their essential mineral constituents." "These substances are present in the soil somewhat like colouring matter in charcoal or iodine in starch, fit for absorption by the rootlets of plants, but not by themselves soluble in rain water or removable by this solvent until the soil is saturated with them. It is more than probable that it is assigned to the majority of our cultivated plants to receive their nourishment directly from the portions of the soil which are in immediate contact with their rootlets, and that they die when their food is presented to them in solution." "From the action of soils already described, it follows that plants must themselves play some peculiar part in the absorption of their food. As organised living structures, their existence is not quite dependant on external causes." "They select from the soil those substances which they require, but which can only pass into the interior of their organisms by the co-operation of a cause which resides within the rootlets."

"By its decomposition in the soil humus forms a source of carbonic acid, by which the fixed elements of food are rendered soluble and capable of being distributed in all directions." "Like carbonic acid water, the sulphate, as well as the other soluble salts of ammonia, possesses the property of rendering the earthy salts soluble in water."

"We know of no other way in which the earthy phosphates are dispersed through the soil than by means of carbonic acid water. If it is true that one of the chief effects of humus, or the decaying remains of plants in soils or in manures, consists in its forming a source of carbonic acid, with which the air and the water of the ground is enriched: if it is also true that this carbonic acid water renders the earthy phosphates soluble, and thus contributes to their distribution in the soil, then there can be no doubt that the salts of ammonia, which possess the same solvent property, can in this respect replace the organic matters, and thus exert an equally favourable influence on the growth of plants." "The same solvent property is also possessed among the salts of soda by Chili saltpetre and common salt. It has been recently shown that these two salts, even in the most dilute solutions, dissolve earthy phosphates to a very appreciable extent, and that consequently they must play a part in the process of the nutrition of plants similar

to that which is ascribed to carbonic acid and water (to the humus) and salts of ammonia."

"The seeds of the cereals, particularly Wheat, contain phosphate of lime, and in preponderating quantity phosphate of magnesia. In many kinds of Wheat the quantity of phosphate of magnesia is four times, often ten times, greater than that of phosphate of lime; and in like manner in the grain of Rye, Oats, and Barley the magnesia salt exceeds very greatly the phosphate of lime. These proportions are so constant that they cannot be ignored in the cultivation of these plants. The comportment of the salts" (nitrate of soda and common salt) "above mentioned towards phosphate of magnesia and ammonia and phosphate of magnesia appears, therefore, of special interest."

Liebig goes on to show that the solubility of tribasic phosphate of magnesia is, in a solution of nitrate of soda, 4.5 grains in a gallon; and, in a solution of common salt, 5.3 grains in a gallon; and that the solubility of phosphate of magnesia and ammonia is much greater—viz., in a solution of nitrate of soda, 9.8 grains in a gallon; in a solution of common salt, 8.6 grains in a gallon; in a solution of sulphate of ammonia, 8.6 grains in a gallon. "It is quite conclusive from these facts," he adds, "that water containing a very small quantity of common salt, nitrate of soda, or sulphate of ammonia acquires thereby the power (which alone it does not possess, or only in a slight degree), of dissolving phosphoric acid in the form of earthy phosphates. These feeble solutions, therefore, react towards earthy phosphates like solutions of carbonic acid in water."

It also appears to me to be equally conclusive that to estimate the value of phosphates of lime and magnesia without reference to the salts of ammonia, or to the organic matter capable of yielding carbonic acid which is present in the manure, must be incorrect; and that, "like the salts of ammonia or a watery solution of carbonic acid produced by the decay of organic matter in manures, a solution of these salts" (nitrate of soda and common salt), "wherever they come in contact with spots containing accumulations of earthy phosphates not fixed by the soil, must become saturated with these phosphates, and thus convert them into a condition in which they can be diffused through the ground."—

INQUIRER.



AT a general meeting of the ROYAL HORTICULTURAL SOCIETY, held October 10th, Geo. F. Wilson, Esq., F.R.S., in the chair, the following candidates were unanimously elected Fellows—viz., Mrs. Gilbert à Beckett, Dr. M. F. Anderson, A. F. Govett, H. Herman, Mrs. Montagu, Mrs. Frank Schneider, and Dr. J. P. Stratton.

— THE "Belgique Horticole," referring to ERYTHROCHÆTE PALMATIFIDA, of which we recently gave an illustration, states that the plant was introduced from Japan to the St. Petersburg Botanic Garden about 1864 by M. Maximowicz.

— AT a meeting of the Horticultural Club, Ashley's Hotel, Henrietta Street, Covent Garden, held on Tuesday night, a very excellent PORTRAIT OF MR. JOHN LEE, the Chairman, was uncovered. It was subscribed for by the members of the Club, and suspended in the room as a mark of the high esteem in which Mr. Lee is held by a large circle of friends.

— MR. GEORGE BOOTHBY, Louth, has sent us flowers of a SEEDLING FUCHSIA, which he considers an improvement on any others of the type. The flowers are certainly very large and double, the petals broad and nearly pure, the sepals elegantly reflexed and deep coral red. If the habit of the plant is good and the flowers are freely produced, the variety will be valuable for decorative purposes.

— A CORRESPONDENT desires to accord the following word of praise of SINGLE DAHLIAS:—"For effect in masses they are charming, and as single specimens they are very telling. In groups, with colours blended, they make showy beds, and are

considered by many superior flowers to the double varieties. For use in vases and dinner-table decorations, they have the advantage over all other Dahlias, being more graceful. They ought to be grown in all gardens. The following sorts I find good—Paragon, lutea, coccinea, alba, Cervantesii, Stella Bianca, and Painted Lady.”

— WE are glad to hear that the FREEHOLD OF THE OLD FULHAM NURSERY of Messrs. Osborn & Son, which was offered for sale at the Mart, Tokenhouse Yard, by Messrs. Protheroe & Morris on Thursday last, has been bought by Messrs. James Veitch & Sons of the Royal Exotic Nursery, King's Road, Chelsea. This nursery is the oldest of the existing metropolitan nurseries, and was founded in the beginning of the last century. It has always had a high reputation for its fruit trees, its collection of ornamental trees and shrubs, and at one time it possessed the richest collection of herbaceous perennials which was to be found near London. It is well to know that this historic nursery, so closely associated as it is with the history of English gardening, is not to be handed over to the tender mercies of the enterprising builder, but will become an adjunct to that equally notable firm of James Veitch and Sons, who will in future carry on the Fulham business in conjunction with their own at King's Road, Chelsea.

— THE Commissioners of Her Majesty's Works have issued the customary autumn notification that they intend shortly to distribute SURPLUS PLANTS FROM THE LONDON PARKS among the working classes. If the clergy, school committees, and others interested will make application to the superintendent of the park nearest their respective parishes, or to the Director of the Royal Gardens, Kew, or to the Superintendent of Hampton Court Gardens, in the cases of persons residing in those neighbourhoods, they will receive early intimation of the number of plants that can be allotted to each applicant, and of the time and manner of their distribution.

— MR. GEORGE RUDD of Undercliffe, Bradford, is now sending out his new PICOTEES MRS. RUDD and SARAH ELIZABETH. The former is a heavy edge, described by the raiser as a seedling from Edith D'Ombra, with deeper colour and smoother edge than that fine variety. It has a large broad petal, free from spots or bars, and the nearest approach to a self-dressed flower he has yet seen. The latter is a light red-edged seedling from Thomas William; a large full flower with a true wire edge, and is a strong grower. The new white Clove Virgo, which has been recently described, is also now being distributed by Mr. Rudd.

— A SCOTTISH correspondent asks a question RELATIVE to EARLY ROSES which we shall be glad if any of our readers can answer:—"Please name a Rose or two having all the good qualities of Gloire de Dijon, but a month or two earlier in blooming." We should like a few Roses of the nature indicated, but almost despair of finding any flowering a "month or two" sooner than the old favourite.

— WHEN any kind of tropical fruits become plentiful upon the London hawkers' barrows it may be safely concluded that the culture of that kind has been largely extended in some suitable part of the world. This would appear to be the case with POMEGRANATES, which every year seem to become more abundant in the metropolis, and it is quite common at this time of year to see large barrowloads in the streets. The fruits, too, are offered at a merely nominal price, some fine ones being sold at two for a penny, such as a few years ago could not have been purchased for less than 3d. or 4d. each. Like the Pine Apples and Bananas, these are now evidently imported in large quantities, some of which must be sold in the first instance at exceedingly low prices.

— THE peculiar but brilliantly coloured ANTHURIUM ANDREA-ANUM appears to be advancing in favour, judging by the fact that

in one of the florists' shops at the Covent Garden Market we recently observed about a dozen handsome spathes. We have previously noticed a few small samples on several occasions, but these were unusually fine, of great size, and the glossy scarlet hue most striking, the white base of the spadix seeming by contrast to render the richly tinted spathe even more prominent. That this species will ever become as popular or as generally useful as *A. Schertzerianum* can scarcely be expected, yet the strangely puckered appearance of the spathes and the unrivalled colour will doubtless cause it to be largely grown.

— A BRISTOL correspondent writes:—"However deserving of commendation LORD NAPIER NECTARINE may be for cultivation under glass or in a warm soil, it has proved a great disappointment to me here on a coldish clay soil even so far south as the neighbourhood of Bristol. I obtained a tree from Messrs. Rivers four years ago, which now covers about 100 feet of brick wall with a good aspect, where Peaches and Nectarines in general are of excellent quality; but it has so entirely failed to ripen its fruit the two years it has borne, that I am about to destroy it and plant a second tree of Hale's Early Peach, which I find a first-rate variety."

— RELATIVE to the VALUE OF MANURES Mr. A. Boyle writes:—"In answer to Mr. Peter Ferguson, page 298, he appears to be unaware that the richer the food of animals the more valuable the manure, even though the diet of both may be classed under the same head. For instance, that from animals who get oilcake is much more valuable than what comes from those which do not." This is no doubt correct; hence in some counties it is customary for the incoming tenant of a farm to pay a large share of his predecessor's cake bill of the previous year on proof being submitted that the cake has been consumed on the farm.

— THE October issue of the "Botanical Magazine" gives a very good plate of *LILIUM PARRYI*, a charming South Californian species now well known to most lovers of such plants, as it was discovered about six years ago, but it is as yet very scarce in cultivation. The beauty of the plant has been admirably shown at Kew this summer, where a specimen on the new rockery has flowered grandly and attracted the attention of many who had not previously seen it. The flowers are of moderate size, the petals narrow and slightly recurved, of a bright yellow colour, the anthers being brownish. The stem is about 3 feet high, with lanceolate leaves in whorls. The raceme is a foot or more in length, also having the flowers in whorls of three to six. Sir Joseph Hooker states that "*L. Parryi* is a native of the San Bernardino mountains, Southern California, on the borders of the Arizona desert, at an elevation of 4000 feet. It was found in the Potato patch of a settler in a boggy soil."

— THE schedule of the KINGSTON CHRYSANTHEMUM SOCIETY announces that the sixth annual Exhibition will be held in the Drill Hall, Kingston, on Thursday and Friday, November 16th and 17th of the present year, the usual liberal prizes being offered in numerous classes. There are, however, two classes of special interest—namely, those in which the champion challenge vases are offered, and the competition in these alone will undoubtedly render the Show one of the most important of the season. It will be remembered that the first vase has been won in the three years—first by Mr. G. Harding, gardener to T. Galpin, Esq., Putney Heath; second by Mr. W. Tunnington, gardener to Chas. MacIver, Esq., Liverpool; and third by Mr. F. Faulkner, gardener to F. R. Leyland, Esq., Liverpool, the competition this year being confined to those exhibitors. That all will try their best for the final success this year there can be no doubt, and it appears extremely probable that the contest will be exceedingly close and keen. A second vase of equal value to the first—i.e., twenty-five guineas,

with £3 in money, is offered this season also for forty-eight Chrysanthemum blooms, comprising twenty-four Incurved and twenty-four Japanese, the three winners of the first vase to be excluded from competing for this one. Thus some others of the many good growers will have an opportunity of testing their strength.

— THE *Chambre Sydicale des Horticulteurs Belges* of Ghent have issued a circular in six languages, stating that the following resolution has been agreed to in reference to an INTERNATIONAL CONGRESS OF HORTICULTURISTS:—"In order to give to the representatives of horticultural industry of all countries the occasion to extend mutually their commercial relations and discuss their common interests, an international meeting of horticulturists will take place at Ghent in April, 1883. The programme will be published in due time. As this meeting will coincide with the great quinquennial international flower show organised by the Royal Agricultural and Botanical Society, interesting entertainments will be offered to the Congress members."

— BORDERS OF HARDY PLANTS are still attractive where proper attention has been given to including in the collection late as well as early-flowering plants; and though the numbers of the former are more limited than those of the latter, yet the great family *Compositæ* affords abundance to select from. One of the finest borders of this kind we have seen recently is at Kew near the T range, which has been greatly admired by all visitors. As a background numerous clumps of the floriferous and beautiful *Pyrethrum uliginosum* are particularly fine, bearing a profusion of their large pure white blooms. Near these the early-flowering varieties of *Chrysanthemum indicum* form a pretty contrast, the bright rosy crimson form *Adrastus* being especially good. Dwarf and tall purple, blue, and rose *Michaclmas* Daisies are freely employed, together with the dwarf yellow *Composites*, such as *Coreopsises*, *Chrysanthemum segetum*, *Helianthus multiflorus*, and many others. Single Dahlias are similarly planted in suitable positions, and a most satisfactory effect is produced, which will last until the frosts become sufficiently severe to injure the plants.

— IN the ORCHID HOUSE AT KEW several plants are now flowering that are worth the attention of growers. Conspicuous amongst them is the charming *Compactia macroplectron*, for a plant of which it will be remembered that Mr. Heims, gardener to F. A. Philbrick, Esq., Oldfield, Bickley, obtained a certificate at one of the Royal Horticultural Society's meetings this year. It has drooping racemes of mauve-coloured flowers, the sepals, petals, and broad rounded lip being spotted with bright rose—a pleasing and delicate contrast. *Spathoglottis Fortunei* is a pretty dwarf species with neat bright yellow flowers that are produced very freely, and would be extremely useful for cutting. The remarkable *Cypripedium Spicerianum* is bearing one of its striking flowers, the large white dorsal sepal having its margins revolute, and appearing almost funnel-shaped. Near it is the neat and bright purple *C. purpuratum*, which is not too frequently seen in collections. As a curiosity may be noted the peculiar *Gongora Bufonia luteochilum*, which has a pendulous spike of reddish flowers with yellow lips, the structure being very peculiar. In the porch *Pleione Wallichiana*, *P. lagcnaria*, and *P. maculata* are flowering profusely, near them being the richly coloured *Pinguicula caudata*, which has again commenced flowering. This beautiful species, as we have frequently noted, is almost constantly in bloom, and the fine crimson hue of its flowers is unrivalled.

ROSES AT THE AUTUMN SHOWS.

Now that the principal shows of the year are over, and before arrangements are made for next year, permit me to call attention to a grievance of Rose-growers which a stroke of the pen may set right to the mutual advantage of show managers and exhibitors.

In the schedule of prizes at a show held in September there are liberal offers for Roses—forty-eight varieties in bunches of three

trusses, or 144 flowers; twenty-four varieties and twelve varieties, both in bunches of three trusses, or six dozen and three dozen in the respective classes. "Why were you not at the show?" was asked of a Rose-grower whose name is well known as a prize-winner at metropolitan shows. "Simply because I was excluded," said he. "Who is able to find three really good flowers of each of forty-eight, twenty-four, or even twelve varieties at this season of the year?" "Certainly not those who exhibited," I replied, "for there were not more than three or four really good triplets even in the first-prize stands."

Now at a season of the year when really fine flowers are so few and far between that we may reasonably regard any one of them as "the last Rose of summer," surely it would answer best to confine every class to single flowers or trusses, not simply because even the largest growers must then find it difficult, almost impossible, to stage an entire stand of triplets worthy of a prize, but rather that it would be quite certain to materially increase the number of entries, and, what is even more important, secure the exhibition of many more good examples of such general favourites.

"Can that possibly be *La France*!" said a lady to me at the show in question. Yes, it was undoubtedly *La France*, but not easily recognisable under its autumnal guise, the small flowers having none of its attractive summer brilliancy. "Not bad for this season of the year" perhaps, and in point of fact is, often said in reply to such strictures. But the wisdom of offering what may be fairly termed unreasonable prizes for any flowers is certainly questionable. Rather let them be so modified to what is possible in autumn as to secure for the Rose as high a place then among the other exhibits as it has in summer, and this can only be done by the exclusion of triplets.—EDWARD LUCKHURST.

A TOMATO TRAP FOR INSECTS.

I HAVE lately found out something in this way which is new to me. In washing out some Tomato seed the other day I was called away, and left a teacup half full of seeds, pulp, and water. To prevent this from moulding I placed the cup close to a hot-water pipe in one of the vineries, and next morning the cup was almost full of dead woodlice, crickets, earwigs, and all kinds of insects which are fond of harbouring in warm corners or about glass houses. They were all mixed up together, as if there had been a general scramble as to which was to get in first. Owing to this little could be seen of our valuable seed, which we had lately brought from Scotland; but the satisfaction of securing such a haul of those general garden pests so unexpectedly fully compensated for the loss of the seed. The following night and other nights afterwards we repeated the dose with some worthless Tomatoes, and the result was the same as in the first instance. Now we are using this trap about the pits and where the pests indicated are troublesome, and to all appearance they will soon be all caught. We have never been able to find anything which took them in so completely before, and I would be pleased to hear of anyone trying it as successfully as we have done.—J. MUIR, *Margam*.

FRUIT-JUDGING AT EDINBURGH.

THE gentlemen who acted as fruit judges at the late International Fruit Show were as follows:—Messrs. D. Thomson, Drumlanrig Castle; A. F. Barron, Chiswick; J. Smith, Mentmore; G. Smith, Vice-regal Lodge, Dublin; A. Fowler, Castle Kennedy; Z. Stevens, Trentham; A. Henderson, Thoresby Park; J. Webster, Gordon Castle; T. Lunt, Ardgowan; W. Bennett, Rangemore; and J. Dell, Stoke Rochford. If no other fact than the above had been mentioned I think enough would have been said to satisfy most of your readers that justice was done to every exhibit set before them. However, "H. B." seems to think otherwise (see page 289), and attributes the result to the deception of the eye "in the grey of the morning." The fact is, the Veitch Memorial medals were awarded to the finest Grapes and the best collection of fruits at about nine o'clock, when the sun was high and shining brightly. So much for "the grey of the morning."

Nothing can possibly be more distasteful to me than even seeming to praise my own and disparage the exhibits of my respected brethren; but as "H. B." has considered it part of his duty to question the verdict of the Judges and the excellence of my exhibits, allow me to say a few words in reply.

In the first place, the Society offered the prizes in the premier Grape class for the best twelve bunches, and the Judges did award the first prize to the undoubted best twelve bunches in the competition. In cases like this it requires something more

than simply the best varieties ripe and fit for table "early in September."

Your correspondent seems to have made a great hit when he discovered in the class for twelve dishes of fruits that the third-prize collection ought to have been first, also that Charlotte Rothschild Pine Apple in the first-prize lot had a few green streaks round some of the pips. Well, it did have the blemish of wanting another day or two to finish it perfectly; however, the fruit being in every way symmetrical, and weighing 8 lbs. 9 ozs., no other fault could be urged against it. I wonder "H.B."

did not see the Queen Pine at the other end of the collection; this was as perfectly finished as any Pine in the Show, and weighed 5 lbs. 6 ozs., or about the weight of the two Pines in the third-prize put together.

Again, "H. B." says every dish in the third-prize was fit to put on the table of a prince. On the exhibition table there were staged seventeen collections of twelve dishes each, and in my opinion any or all of the 204 dishes might be fit to put on the table of a prince. It was a matter of common comment on the spot that perhaps the poorest dish of fruit on the whole table



Fig. 56.—ÆSCHYNANTHUS SPECIOSUS.

was the dish of Nectarines in the said third-prize collection. The Muscat of Alexandria Grapes in this lot were indeed far from first-class. "H. B.," I think, ought in fairness to have mentioned the fact that it took three bunches to cover a very moderate-sized stand, and these had their shoulders padded with wool in order that they might appear presentable. The colour, too, was somewhat different from those that won the Veitch Memorial medal.

Apples in a class like this, be they ever so good, are somewhat common, and I think "H. B." in criticising the decisions of the Judges in some other cases would have done well to have noticed the Figs as well as the Peaches. Here in the small competition the large Figs were passed over, they being from the same source

as came the Figs in "H. B.'s" fancied third-prize collection.—J. MACINDOE, *Hutton Hall*.

[This is equally a reply to "A SCOTCHMAN," on page 318, and shows that "H. B.'s" letter is not "unanswerable."]

ÆSCHYNANTHUSES.

GESNERIACEOUS plants are some of the most brilliant ornaments of our stoves, the majority of them producing very gaily coloured flowers in abundance, and these seem even more attractive in comparison with the rich diversity of foliage which Palms, Crotons, Dracænas, Alocasias, and innumerable others present.

Gesnerias, Tydæas, Gloxinias, Achimenes, and Streptocarpus include many handsome plants of great value not only for the stove but for cooler houses also, though the majority are more at home in a rather high temperature.

The genus *Æschynanthus*, to which especial attention is now called, similarly comprises several species of much beauty, particularly as basket plants, for which their epiphytal and pendulous habit well fits them, and in gardens where they are carefully grown no better plants for that purpose could be desired. The rich scarlet and orange shades distinguishing their flowers are unrivalled, and the blooms, being produced in large trusses or clustered closely along the stems, have a very imposing appearance when pendulous from elegant baskets near the path of a stove. They are not more difficult of management than many other epiphytal plants; but it is no use attempting their culture in any house where a high and moist temperature cannot be maintained with regularity, and perhaps most failures that occur in the growth of these plants is due to a misapprehension of their requirements in this respect. The baskets should be prepared in the ordinary way with a layer of large potsherds and some pieces of charcoal, over which a layer of rough moss or peat can be placed, upon which the plant should rest, with good fibrous peat in lumps placed firmly round the roots. Water must be liberally but judiciously supplied; and if at any time the temperature becomes unduly reduced the amount of water given must be proportionately limited, or the plants will soon become extremely unhealthy, and when once they get into that state it is very difficult to ensure their recovery.

A few of the species are adapted for culture in pots, the best of these being the one represented in the engraving, as it is of more erect and sturdy growth than the majority, and the large trusses of flowers being borne at the apex of the stems in an erect manner, and are seen to much better advantage in that way than when in baskets. Some cultivators prefer peat alone for this species under pot culture, with thorough drainage, but I have found a little turfy loam incorporated with the peat is beneficial. But in that case sand should be also used, unless the peat contains a large proportion. Both the basket and pot plants must have a warm position in the stove, and then little difficulty will be experienced with them.

Of the species in cultivation, that shown in fig. 56—viz., *Æ. speciosus*, is one of the most handsome, its large scarlet and orange flowers being produced in trusses of sixteen to twenty, and with several of these on a plant of moderate size in a 48 or 32-size pot the effect is most striking. Another valuable quality it possesses is the remarkable durability of the flowers, which last in good condition for some weeks. Like several others of this genus, we are indebted to Messrs. Veitch & Sons for the introduction of this plant, which was found by Mr. Thomas Lobb growing upon trees in damp woods on Mount Asapan in Java at an elevation of 2000 feet. *Æ. fulgens* was also collected by Mr. T. Lobb in Moulmein. It approaches the above in habit, but is more drooping. The leaves are large and ovate, the flowers being 3 inches or more long, scarlet streaked with yellow in front, and are borne in large heads.

Æ. cordifolius, obtained by the same collector, is a native of Borneo, with leaves and flowers of moderate size, the latter about 2 inches long, deep scarlet streaked with black in the throat, and produced in pairs or triplets in the axils of the leaves. This is well suited for a basket, as also is its near relative *Æ. tricolor*, both being of slender habit. The last-named is similarly a native of Borneo, whence it was obtained by Messrs. Low of Clapton. It has small ovate leaves, the flower being about $1\frac{1}{2}$ inch or 2 inches long, scarlet streaked with yellow and black, being borne in the axils of the leaves. *Æ. javanicus* is a showy form, with deep scarlet flowers streaked with yellow, and borne in the axils of the leaves near the point of the stems; while *Æ. Lobbianus* ought to be included in every collection, its rich scarlet corollas contrasting so well with the deep purple calyx. All these succeed best in baskets.—L. CASTLE.

SCRAPS ABOUT FRUIT.

LAST year under the above heading there appeared a miscellaneous collection of very interesting information which I had been hoping to be commenced again this year, as there surely must be much more for many of us to learn. By way of starting the train again I would bring under the notice of your readers a few fruits.

THE PINE APPLE RUSSET APPLE.—This is a most delightfully aromatic-flavoured Apple. It ripens well here even in unfavourable seasons. It is small, but makes up for that in its extra good-

ness. It somewhat resembles in flavour the Cornish Gilliflower; but as it ripens earlier and in more unfavourable seasons I think it is a superior kind to grow, and no one will regret adding it to his dessert list.

THE DYMOND PEACH.—Has this Peach borne out the high character it received last year for hardiness and certainty of crop? for if it has stood its ground in such a bad Peach year as this it ought to be better known. Messrs. Lucombe & Pince of Exeter kindly favoured me with a few buds in summer, but unfortunately they were not sufficiently matured; and coming in dry cotton wadding, they were so shrivelled that, though the bark of the bud has taken well to the stock, I am afraid the buds will fail to push in spring.

SENDING BUDS BY POST.—On this subject of budding some may not know that in having buds sent by post the blade of the leaf should always be cut off, leaving only the stalk; the scion with the buds on it should then be rolled in damp wadding. It will in this way come a long distance, even in hot summer time, without injury to the buds; but before working them the scion had better be put in rain water till bark and buds have plumped up again, if they have been at all withered.

REINETTE FRANCHE APPLE.—Two or three years ago I bought in a fruiterer's in Paris a most excellent deliciously flavoured Apple, somewhat above medium size, round and without ribs; skin greenish, turning to brownish yellow on the sunny side, and covered by light grey russet—answering, as far as my memory goes, to the description in the "Fruit Manual" of Reinette Franche, but on asking the name all I could learn was that it was Reinette. Now I want to know, Is this Apple grown any place in England? If it can be grown as good as I ate it in Paris no garden should be without it, as it was far superior to any American Apple I have ever tasted; and yet, though I have consulted the fruit catalogues and many of the chief growers in England, and written about it to numbers of nurserymen, I cannot hear of it being procurable anywhere.

THE COLUMBIA PLUM.—This is stated in the "Fruit Manual" to be sometimes as much as 2 inches in diameter and an excellent fruit; yet no nurseryman seems to think it worth while growing, and outside of the "Manual" it seemed to be unknown.—IRISH RECTOR.

[The description in question of this Plum was of American-grown fruit. We have found that the fruit does not attain the same size in this country, and the variety does not appear to be well adapted to our climate.]

ROYAL HORTICULTURAL SOCIETY.

OCTOBER 10TH.

ONE of the largest and most interesting meetings that has been held for some time was that of Tuesday last, when plants, flowers, and fruits were shown in large numbers, the Council-room and vestibule being well filled. The single Dahlias, Roses, and large collections of Apples and Pears were the great features of the display.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. Mr. R. Gilbert, The Gardens, Burghley House, Stamford, exhibited a green-flesh Melon of moderate size named Burghley Pet, said to be a cross between Netted Victory and Dickson's Exquisite. The flesh was deep, juicy, and of an exquisite rich flavour. A first-class certificate was awarded for it. A letter of thanks was also accorded to Mr. Gilbert for bunches of Gros Maroc, Gros Colman, and Black Alicante Grapes, the berries of good size and beautifully coloured. A certificate was also awarded to Mr. Taylor, gardener to J. McIntosh, Esq., Dun-eewan, Oatlands Park, Weybridge, for a Codlin-like Apple erroneously named Landsberger Reinette; the fruits of pyramidal form, the apex of the fruit pentagonal, the eye deep, pale yellow with a slight rosy tinge on the side next the sun. Mr. C. Howe, The Gardens, Benham Park, Newbury, sent some handsome Cucumbers named Challenger, a cross between Freeman's Yard Long and Telegraph, and said to be very prolific. A fruit was also shown of Melon Eclipse, a cross between Benham Park and William Tillery, described as useful for culture in pots. Messrs. J. Veitch & Sons, Chelsea, sent some fine samples of Neapolitan Curled Kohl Rabi. Mr. A. Pettigrew, Castle Gardens, Cardiff, was awarded a cultural commendation for fruits of Cardiff Castle Cucumber of moderate length but very even. Mr. T. Laxton, Bedford, sent several dishes of Runner Beans, The Czar and Girtford Green being the finest. Messrs. James Veitch & Sons sent a fine collection of Apples and Pears, comprising 180 dishes, representing a large number of varieties. Some Apples were extremely fine, all the best varieties being shown, and well merited the silver medal awarded for them. Mr. Goldsmith, The Gardens, Hollenden Place, Tonbridge, was awarded a bronze medal for a collection of sixty dishes of Apples and Pears, the Pears being of great merit

large, and finely ripened. Messrs. H. Lane, Great Berkhamstead, were adjudged a similar honour for a collection of Apples and Pears comprising ninety dishes; and a bronze medal was also adjudged to Mr. A. G. Bridgeman for a collection of merit. A letter of thanks was adjudged to the Rev. Canon Smith, Great Marlow, for several dishes of fine Apples and Pears.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Messrs. J. Veitch & Sons, Chelsea, exhibited a group of new plants, several of which were certificated and are described below, but the following were also worthy of notice. The rosy scarlet *Impatiens Sultani* was represented by a number of small plants a few inches high and flowering freely, indicating the value of this plant in a decorative point of view. Several early-flowering *Chrysanthemums* were also shown, amongst them being a pure white-flowered variety named Mrs. Cullingford, extremely free and of great size. Messrs. Heath & Son, Cheltenham, had a group of *Dendrobium formosum giganteum* in grand condition, the plants being grown in shallow pans and on pieces of cork. The healthy sturdy growth of the plants was surprising, nearly every shoot terminating in from three to eight large white flowers, the tips of which are dashed with pale yellow. The Burmese variety of *Vanda cœrulea*, a very deep purplish-blue-flowered form, the spike having nine large flowers, and a freely flowered specimen of *Oncidium ornithorhynchum* were also shown, together with several *Saccolabiums*. Mr. L. F. Davis, Ogles Grove Nursery, Hillsborough, Co. Down, Ireland, had a collection of varieties of *Pernettya mucronata* in fruit, which attracted much attention. The rich crimson, purple, mauve, and white-berried forms were represented by compact little specimens, and several were certificated. In addition to those so honoured the following were noteworthy:—*Rosea lilacina*, rosy purple, which was certificated last year; *purpurea macrocarpa*, large deep purple fruits; *atrosanguinea* major, very dark scarlet fruits; and *coccinea*, deep rich scarlet fruits. The utility of these plants for decorative purposes was admirably shown by this group, the fruits being so thickly clustered on the branches. Mr. Davis also had some varieties of *Cupressus*; *Lawsoniana erecta viridis*, of fastigate form, deep rich green, and *erecta alba* being the best. The last-named was certificated.

Mr. B. S. Williams, Upper Holloway, had a group of Orchids and new plants, comprising several well-flowered plants of the pretty rosy-purple-flowered *Dendrobium superbiens*; fine varieties of *Odontoglossum Alexandræ*; *Oncidium oblongatum*, with large panicles of pale yellow flowers; the rich purple-flowered *Zygopetalum Clayi*; *Odontoglossum madrense* with white flowers, the narrow sepals and petals brown at the base, and the triangular lip yellow in the centre; the bright purple *Pleione Wallichii*, and the rich purple-tinted *Cypripedium barbatum biflorum*. The well-flowered examples of *Dendrobium superbiens* especially attracted attention, as it is reputed a difficult Orchid to grow satisfactorily. A vote of thanks was awarded; also to Mr. E. Spary of Brighton for a vigorous plant of *Gymnogramma Sparyana*, one of the Golden Ferns, with very large fronds. A similar award was also granted to Messrs. J. Carter & Co., High Holborn, for two large plants of *Pyrethrum uliginosum*, 4 to 5 feet high, and bearing large numbers of their white flowers. The same firm showed a large-leaved *Croton* named *Bealii*, the leaves marked with yellow, crimson, and dark green. Mr. Charles Turner, Slough, exhibited a collection of Show and Fancy Dahlias, comprising a number of large and handsome blooms. A vote of thanks was accorded for these and collections of single and Pompon varieties, the last-named being very fine. A vote of thanks was also accorded to Mr. Turner for a collection of seedling Tree Carnations, scarlet, rose, salmon, and maroon. Mr. T. S. Ware, Tottenham, had a beautiful collection of single Dahlias, white, yellow, orange, scarlet, crimson, maroon, and other shades being represented. Several of the best were certificated.

Messrs. William Paul & Son, Waltham Cross, sent eight boxes of fine Rose blooms, remarkably handsome for the time of year. Especially noteworthy were the Tea Roses *Madame Barthelmy Levet*, *Souvenir d'Adolphe Tiers*, *Victor Verdier*, *Pierre Notting*, *Alfred Colomb*, *Countess of Rosebery*, *Niphetos*, *Louis Van Houtte*, *Duke of Teck*, *Fisher Holmes*, *Marie Baumann*, and *Pride of Waltham*. A medal was recommended for this collection, which was one of the features of the meeting. Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, sent several handsome seedling *Crotons*; one, a narrow-leaved form, a cross between *Weismanni* and *Johannis*; two crosses between *C. majesticus* and *Johannis* were also good, a narrow-leaved form being certificated. A vote of thanks was adjudged to Mr. R. Dean, Ealing, for some bunches of single Primroses of diverse colours.

Messrs. H. Cannell & Sons, Swanley, had a large and beautiful group of single Dahlias and miscellaneous hardy flowers, such as *Pyrethrum uliginosum*, *Pentstemons*, *Marigolds*, &c. A vote of thanks was accorded. A vote of thanks was accorded to Messrs. Dixon & Co., Hackney, for blooms of Japanese *Chrysanthemums* and plants of *Gymnogramma Laucheana grandiceps*, an elegant variety with tufted fronds. The Japanese *Chrysanthemums* were mostly new, and comprised the following of special merit:—*Chinaman*, flower large; margins of narrow florets revolute, deep purple, under side whitish. *François Delaux*, also a narrow-floret form of a rich maroon colour. *George Gordon* with flat florets of a claret colour on upper side, yellowish below; and *Madame Bouchardat* creamy white, large. Mr. Smith, The Gardens, Oakfield, Wimbleton, exhibited plants of a *Begonia*, said to be a cross between *B. semperflorens* and *B. Schmidtii*, plants of both parents being shown for comparison. It was evidently

intermediate between the two named, the hybrid having the red stems and dwarf habit of *B. Schmidtii* with the white flowers of the other parent. A vote of thanks was accorded to Messrs. Rawlings Brothers, Romford, for a large collection of Show and Fancy Pompons and single Dahlias, comprising many fine varieties. Mr. Taylor, The Gardens, Longleat, Warminster, sent two trusses of a large-flowered *Vallota* of remarkable rich colour. Colonel Clarke sent a *Begonia* named *Aurora*, one of the tuberous type, with very abundant deep orange-coloured flowers, for which a vote of thanks was accorded. A tastefully arranged group of Gesneriaceous plants and Ferns was contributed from the Society's Gardens at Chiswick, a collection of *Ceanothus* blooms being also shown.

First-class certificates were awarded for the following plants:—

Mormodes unicolor (Veitch).—A Mexican species, with narrow tapering leaves 18 inches long, the spike being nearly a foot long with about thirty deep yellow fragrant flowers. The sepals and petals taper to a sharp point, the points being incurved, and the flowers closely placed.

Rhododendron Sir Beauchamp Seymour (Veitch).—One of the greenhouse hybrid section, with large beautifully formed flowers; the lobes rounded, of a peculiar distinct pale buff yellow, the stamens being rosy-coloured.

Rhododendron Sir Garnet Wolseley (Veitch).—Another handsome form, of similar type to the above, but having much larger flowers, the limb being over 3 inches in diameter; the lobes rounded, and of an orange or reddish salmon hue. Eight or ten flowers are borne in a head.

Cypripedium Arthurianum (Veitch).—A hybrid between *C. insigne* and *C. Fairrieanum*, a distinct and pretty form. The dorsal sepal broad, undulated at the margin, white at the apex, pale green ground spotted with deep purple; the petals being similar in colour, waved on the upper margin, and the lip of moderate size, purplish brown.

Ornithogalum thyrsoides (R. Veitch & Son, Exeter).—A dwarf free-flowering species, with short broad leaves and dense corymbs of pure white flowers on peduncles a foot or more in height.

Pentstemon Mr. McFarlane (Cannell).—A very distinct variety, with large wide-tubed flowers, the outer part of the tube and border of lobes being rose-coloured, the inner part of the throat being blotched and streaked with deep crimson on a white ground. The spikes are large and dense.

Pernettya mucronata, vars. (Davis).—The following varieties were certificated of this well-known small-leaved dark green shrub:—*macrocarpa*, a strong grower, with very large deep crimson fruits; *sanguinea*, small fruits of a scarlet hue; *alba*, white fruits of small size; *nigra major*, very deep crimson, nearly black; *carnea nana*, pale purplish-pink fruits; *purpurata*, pale purple fruits.

Rose Earl of Pembroke (Bennett).—A pedigree Hybrid Perpetual Rose, shown by Mr. Bennett of Shepperton, Middlesex. The blooms are an extremely deep rich scarlet-crimson tint, the petals broad and revolute.

Cupressus Lawsoniana erecta alba (Davis).—Similar in habit to *erecta viridis*, but with light green foliage approaching white. Very elegant and pretty.

Phalenopsis Esmeralda (Williams).—A botanical certificate was awarded for the plant, which has very diminutive flowers white, purple, and orange near the top of spikes 2 feet or more in length.

Croton Eyrei (Ross).—A cross between *majesticus* and *C. Johannis*, with large narrow drooping bright yellow leaves, slightly voluted, the upper parts of the older leaves being streaked with green. This would prove an extremely valuable plant for table decoration, being most graceful in habit and bright in colour.

Dahlia Harrison Weir (Rawlings).—A Show variety. Large, full, compact, deep, and symmetrical; rich clear yellow.

Dahlia Duchess of Albany (Turner).—A Fancy variety, with large compact blooms of an orange-yellow ground, streaked and spotted with scarlet. *Nymphe*.—Very neat, the florets yellow tipped with orange. This and the three following are Pompon varieties shown by Mr. Turner. *Little Princess*.—Compact and small blooms, the florets pale mauve tipped with purple. *Isabel*.—Very neat blooms, intense scarlet and very free. *Little Duchess*.—Pale mauve, nearly white tipped with deep crimson.

Dahlia White Star (Ware).—This and the five following are single forms. A small-flowered variety, but very neat and extremely free. *Francis Fell*.—Deep rosy crimson florets, broad and rounded. A very telling colour. *Cherry*.—Rose, shaded crimson, very distinct shade. *Mrs. Burbidge*.—Deep purplish plum hue, neat rounded florets, and flowers of good outline. *Mrs. Goldring*.—Pale rose, very broad florets, circular and handsome. A useful and distinct variety. *Pantaloon*.—Small flowers, white or pale centre edged with deep maroon.

Dahlia Marguerite (Cannell).—This and the two following are also singles. Deep rose, shaded lighter at margins of florets; flower symmetrical. *Tyro*.—Rose shaded purple; very free. *Yellow Gem*.—Rich yellow, very handsome flower of moderate size; broad florets. *Constance*.—A white form of the Juarezi type; pure white, large, and free.

During the afternoon Mr. Shirley Hibberd gave a lecture in the Council-room upon plant labels, with especial reference to the results of the recent competition for the prizes offered by G. F. Wilson, Esq., through the Society of Arts. Upon this subject the lecturer delivered a humorous and instructive discourse of about an hour's duration, discussing the respective merits of the substances employed for labels and the various modes in which they are utilised. He stated that

Mr. Wilson's object in giving the prizes was to obtain a label that should be legible, durable, and cheap; and he considered that those were the chief points requiring attention. Unfortunately it was difficult to find one which combined all these qualities, and in consequence at the first competition no prize was awarded. At the second, however, a label was selected as worthy the award. This consisted of an oblong wooden blade, through two holes in which a strong galvanised wire was bent, so as to form two prongs, as it were, which was the part inserted in the soil. He described at length the merits of metal, glass, paper, and wood as substances for labels, and after explaining the good and bad qualities of a large number of those shown at the Society of Arts Exhibition he concluded by describing one of his own design, in which the body consisted of metal—either sheet iron or Bessemer steel—and upon the blade was fixed a small sheet of sized paper, on which the name of the plant or tree had been previously printed. This was then covered with a coating of copal varnish, and the label had the merits of being practically indestructible, very legible, and easily altered or renewed. Mr. Wilson, the chairman, in proposing a vote of thanks to Mr. Hibberd, stated that he had also offered a prize for the best wooden label, which he hoped would bring some good results, as he considered that if one could be found to stand the weather it would far surpass metal or any other substance. One he had tried which had been boiled in paraffin (not petroleum) for twelve hours had proved satisfactory. Unanimous votes of thanks were accorded both to Mr. Shirley Hibberd and Mr. G. F. Wilson.

CHRYSANTHEMUM CORONARIUM.

I WONDER if there are many readers of the Journal who know or who grow *Chrysanthemum coronarium*. It is an old-fashioned annual, and used to figure half a century ago among all collections of flower seeds, and it might have been seen adorning the borders of all gardens where flowers were cherished. But, like many other good old things, it has been crowded out by the novelties by which we are ever too ready to allow ourselves to be led captive. Other *Chrysanthemums* there are which have forced themselves on public favour, and which under the names of Paris Daisy and Nice Daisy have of late become universally grown. But "Daisy" we may not use now-a-days. They must now, forsooth, be called *Marguerites*! and it is these *Marguerites* which, pretty as they are, may be supplemented as decorative plants by this neglected flower.

Last year I procured some seed of *C. coronarium*, which was sown in the open border, and when the plants came up they were thinned, and then left to themselves. They began to bloom in July, and continued to supply a profusion of large yellow, white, and cream-coloured flowers, some double and some single, all through the autumn, and, the winter being mild, they supplied us with cut flowers well into the spring from the open ground. This year I sowed some seed of my own saving, and some of the plants which were allowed sufficient room have grown into handsome bushy forms 2 to 3 feet high, of a pyramidal habit of growth, and covered with a profusion of large flowers, some of which are nearly 3 inches across. Some of these I had potted into 24-pots, and placed in the conservatory, and anything more ornamental it would be difficult to find. It is not only the flowers, but the foliage which is so ornamental, the latter far surpassing that of the Paris Daisy, which I always think is thin and meagre; and then the flowers are so useful for cutting, as they will keep fresh in vases for a fortnight or three weeks without having the water renewed.—SUSSEX.

MILDEW ON PEAS.

COULD any of your numerous correspondents state their experience with respect to mildew on Peas? I have always understood that it was generally attributable to wet, but I am inclined to think that on our land here Peas suffer more from mildew in dry weather. The early part of the summer with us was wet. Peas grew very fast, and were as clean as they possibly could be. A period of dry weather set in, and all the rows were seriously attacked; but in August and September rain again came, and washed them quite clean—in fact, they are quite as fresh now as the early Peas were in June. If it would be of any interest to your readers I could give you my observations on the varieties of Peas new and old (about twenty-five varieties) I have grown during the past summer.—J. S., *Darlington*.

[Your notes on varieties of Peas will be very acceptable to our readers.]

SALVIA HEERI.—We find this *Salvia* the most useful of all for winter-blooming. It is most easily managed. We take the cuttings early in April, which soon root, and are then potted and pinched back from time to time, and then in June are planted out along any unoccupied border in the kitchen garden. Here their growth is regulated by occasional pinching, and they form bushy plants, being lifted and potted about Michaelmas and taken into a coolinery, where

they begin to bloom towards the end of the year, when they are most useful to bring into the conservatory to take the place of the *Chrysanthemums*. Their brilliant scarlet flowers are highly decorative during the months of January and February—a period when conservatories are often found comparatively destitute of bright flowers in elegant sprays. They last well until they give room to the early *Azaleas*. We have never tried the white *Salvia Heeri*, but if it flowers as freely as the scarlet one the two would make a pretty contrast.—M. A. M.

NAMING FRUIT TREES.

NOT long ago I began to buy fruit trees, and being without experience I did not know what to do about labels; so the labels that came on the trees from the nurseries were allowed to stay on them until they gradually dropped off, and the names of the trees were lost. I would therefore advise all inexperienced tree-planters to replace the paper labels at once with labels of zinc, which they can hang on the trees by means of thin lead wire. The names written with a chemical preparation, which is sold with the zinc labels, by means of a quill pen seem never to fade. This may seem a trifling matter, but it would prevent the annoyance which is felt at not knowing the names of the fruits in the garden, particularly when some are much liked, and in consequence there is a wish to grow more of them. The possessor is then driven, as I have been, to trespass on the kindness of the Editor of the *Journal of Horticulture*, and trouble him to remedy the effects of my own carelessness.—J.

[We emphasise the above advice. The matter is far from being "trifling;" on the contrary, it is a question of importance. Scarcely anything causes greater disappointment and involves more trouble in after years than neglecting to secure and preserve the names of fruit trees.]

SILKWORMS AND SILKWORM REARING.—17.

(Continued from page 294.)

WE have stated that the silkworm, *A. Yama Mai*, has been found to be subject to diseases when kept in cages, or at least restricted to a small space. Such a life is necessarily more or less artificial, and it is as liable to be unwholesome to these worms as it is to human beings who are similarly circumstanced. The common silkworm of the Mulberry seems as yet to have taken to confinement better than any of its relatives, thriving in every land if proper care be taken. Indeed so thoroughly has this insect been domesticated or tamed, that it has been observed the worms when kept in trays will die of starvation rather than wander beyond them in search of food, trusting entirely to man for their food supplies. Probably even when leading a life of freedom the *Yama Mai* suffers sometimes from each of the three diseases specified, since the breeders in Japan have noticed them all, though their losses by these are small compared to the percentage of worms that have died under the management of our experimenters. The Japanese have also noted the curious fact that in their country a creeper with a dark stem, and leaves resembling the *Convolvulus*, occasionally climbs up the young Oaks. If one of the *A. Yama Mai* worms chances to eat a small portion of this creeper it dies almost immediately.

Our apparent non-success in Britain with this Japanese species Dr. Wallace and others attribute to an insufficient trial of rearing the worms in the open air upon young Oaks, growing with a moderate amount of shelter from high winds, and where the climate is rather moist. *Yama Mai* is reared to profit upon this plan within a certain district of Japan; it is also fed elsewhere upon twigs or branches taken from some species of Oak, and placed in water very much in our method. Mr. Adams, of Her Majesty's Legation in Japan, made a tour some years ago through that region, which has at present sent the largest quantity of this particular kind of silk into the market. From the town of Matsumoto he was directed to a village situate in the heart of the silk district, and was fortunately able to lodge at the house of one of the principal persons engaged in this industry. He, it seemed, belonged to a society or association comprehending members from a large number of villages, which had the greater part of the trade in their hands, although some silk was produced by outsiders. By a rough estimate this man calculated that his society must on an average sell at least twenty million of cocoons yearly. The demand for the silk of *A. Yama Mai* had of late become greater than the supply: a much larger quantity, so Mr. Adams thought, might have been obtained by improved methods and more attention; "the general principle there of letting things take their course and of leaving the issue to Providence, being painfully manifest."

Several species of Oak grow in that district, but one is chosen

for the food of *A. Yama Mai*, called by the natives *Kunogi*, ascertained positively to be *Quercus serrata*. Many plantations of this tree were seen by Mr. Adams; very frequently they were made on the slopes of hills, but not carried to any height or in the valleys between the hills. The soil was mostly sandy, and the spring is so cold that the early leaves often suffer from frost. Separate nurseries for young Oaks were formed, in which acorns were sown, and the seedlings afterwards replanted in suitable positions. It was also usual to cut down the Oaks to the roots every four or five years to allow them to develop young shoots. Following the change from winter to spring is a rainy season, "when still it rains day after day," and then hot weather usually sets in. The worms have hatched out, as a rule, before the down-pour commences, but the continued moisture does not harm them, for it is one of the peculiarities of *A. Yama Mai* that leaves well besprinkled with water suit its constitution. These silkworms, indeed, both old and young, have been observed to sip drops of water or dew with a relish, as our English "drinker" caterpillar, *Odonestis potatoria*, has the credit of doing, only rarely, I believe.

In order to obtain the eggs the moths, when they emerge in

July or August, are enclosed within small cages of bamboo, which are subsequently hung up under the eaves in dry corners. About the end of the year the eggs are moved by the finger and distributed over wooden trays; these are then placed in some cool position till the time of hatching has arrived. An ingenious plan is next put into operation: the eggs in little batches are pasted on slips of paper, which are tied to a small branch facing the north. By this arrangement the juvenile worms can easily reach the leaves, and from that time until the cocoons are sought after no special care or attention is bestowed upon those so placed. In the case, however, of worms brought up on boughs or twigs of Oak inserted into bottles a regular renewal of the food is necessary, as they feed both by night and day; but then, probably, the return in cocoons may be calculated upon with more confidence. Yet the majority of Japanese breeders incline to the plan of giving the silkworms their freedom.

Mr. Adams inspected many trees or shrubs upon which these were feeding at large, and he particularly observed the close resemblance they bore to the twigs and leaves upon which they rested, so that the eye was apt to miss them until accustomed to



Fig. 57.—CATERPILLARS OF *ATTACUS YAMA MAI* ON *QUERCUS SERRATA*.

distinguish their shape and attitudes (fig. 57). As the silkworms were then nearly full-grown this is a natural protection, doubtless, afforded to them at an age when they would prove tempting morsels to birds. He was told, however, that it was believed many of them were destroyed by sparrows or other birds at some period of their life, on account of which scarecrows had been put up, which the birds appeared to treat with cool contempt. Caterpillars of several other species not recognised by this gentleman were seen to be feeding amongst those of the *Yama Mai*. Ants red and black were said to be noxious to the silkworms, especially the red. Mr. Adams did not observe these. The black he noticed in crowds upon some of the Oaks colonised by *Yama Mai*, though he looked in vain to see them attack the worms. Possibly they drag the young and feeble ones to their nests sometimes.

The average time of growth in Japan is sixty days, varying a little with the warmth of the season. Spinning begins in ten or eleven days after the last change of skin, and the worms are allowed to form their cocoons on the trees and bushes. These are carefully cut off, with a portion of the branch attached to them, and placed within doors upon shelves. Several days having been allowed for the silkworms to change to chrysalids, they are next removed from the vegetable matter and shaken separately. Those that do not rattle are presumed to contain only dead insects.

A selected number of those that do rattle are set aside for breeding, upon the calculation that each female moth will deposit from 150 to 250 eggs. The rest of the cocoons have the enclosed chrysalis killed by the heat of fires or by exposure to the rays of the sun during two or three days. Winding the silk is said to be performed with facility by means of a wheel very simply constructed. At a suitable time the women and children go in search of wild cocoons of *A. Yama Mai*, which are to be found scattered over woods or hedges.—J. R. S. C.

STANDEN'S MANURE.

I THINK it only due to the manufacturers of this manure (Corry, Soper, Fowler & Co.), after seeing it spoken of in the *Journal of Horticulture* as not being quite equal to its former quality, to state that I use it largely, and honestly affirm that its effects on plants are really marvellous. I use it abundantly on Palms, Ferns, Azaleas, Camellias—in fact, plants of all descriptions; and the vigour with which they grow, the rich appearance of their leaves, is evidence that it is a most powerful stimulant and invigorating food for plants. As a highly finished Grape-producer it is, I believe, truly a gardener's friend. I am certain that anyone who will apply it as a top-dressing to a Vine border

previous to forcing will be astonished at its good results, likewise for Peach trees. Another point is its cleanliness in use—a great consideration where greenhouses are frequented by ladies interested in plants, no disagreeable smell being caused by its use. This is my testimony regarding it as a manure, and I am stating my opinion simply as a duty towards the manufacturers.—WM. IRVINE, *Gardener, Lord Howard's, Glossop Hall, Manchester.*



HARDY FRUIT GARDEN.

GATHER Apples and Pears as they become ripe, and place them thinly upon the shelves of the fruit-room, which ought to be kept cool and dry. Avoid anything like rough handling in gathering and storing Apples and Pears, the latter being exceedingly susceptible of injury. Late Plums, such as Coe's Golden Drop and Ickworth Impératrice, though still hanging, will generally be quite ripe and likely to fall. They should, therefore, be gathered and placed singly upon the shelves of a light airy fruit-room, where they will keep good for a considerable time; and although they may shrivel, many prefer them in that state to using them fresh from the trees. Filberts and Nuts of various sorts should be gathered now, and spread out very thinly upon shelves in any airy but not too dry room, or it is likely the kernels will shrink. The nuts must not be divested of their husks, as they are generally placed upon the table for some time to come in their natural covering.

Wherever it may be intended to form plantations of young fruit trees, whether to be trained to walls, &c., or as standards, the ground should be prepared for their reception. The preparation needed will depend in a great measure upon the nature of the soil and the subsoil. All soils overlying a heavy and retentive subsoil will, in the first instance, require thorough and efficient drainage. Light sandy soils very frequently have water lodging in the subsoil, and this must also be removed by drains with a proper fall and outlet, whilst soils resting on a gravelly subsoil may not require drainage. In most instances trenching as deeply as possible without bringing any of the bad soil to the top is essential to the well-being of the trees, especially if surface-rooting be encouraged by keeping the surface mulched. In order to increase the depth of shallow soils, that immediately below the good top soil may be loosened to admit of the percolation of water through it freely. Heavy soils will be improved by a free admixture of burned clay, ashes, old mortar or lime rubbish, and road scrapings. A good liming will materially improve the texture of heavy soils, and charred vegetable refuse is a good application to the soil for all fruit trees. Soils that have long been under vegetable culture will need little beyond liming and an addition of fresh loam. Soil of a light sandy nature should be improved by adding turfy loam and a liberal dressing of well-pulverised clay, applying some well-decayed manure to the surface.

Intending planters must now select their trees, making choice of such as are clean and healthy, have short-jointed well-ripened wood, and are not unduly vigorous or weak. The trees should not be moved until most of the leaves have fallen; then they should be lifted carefully, the roots being protected by careful packing, and, all being in readiness, planting should be done as soon as they come to hand, spreading the roots carefully, and making the soil firm about them. Water must not be given unless the soil be dry, and to retain a genial condition of the soil a mulching of partially decayed manure may be given over the roots.

FRUIT HOUSES.

Peaches and Nectarines.—Planting trees from walls or houses against or in which they have been grown and trained for two or three years and have become well furnished must be attended to without further delay, especially if they are intended to be subjected to forcing from an early period of the coming season. If the trees be lifted carefully, even whilst the foliage be quite green, and well attended to in shading and keeping the house rather close for a short time when the sun

is powerful or the outside air dry, also having the soil in a moist condition, the roots will soon become active. They should not, however, be started so early as trees that have been subjected to the process in previous years.

The border for Peach trees that are to be forced early should be for the most part inside the house, though there is no objection to the roots having some extent of run in an outside border. Fruit-tree borders, especially those for trees under glass, are made too wide, too deep, and too rich, being out of all proportion to the wants of the trees. If the root space of fruit trees were restricted half, and in many instances two-thirds, much would be accomplished towards increased fertility of the trees, and the need for summer pruning, to say nothing of root-pruning, considerably lessened.

A Peach border in the first instance should not be wider than one-third the height or breadth of the trellis; 30 inches is a sufficient depth, 6 or 9 inches being occupied by drainage, and the rest soil—strong loam of a calcareous or marly nature—placed together as firmly as possible, without any admixture whatever. If light, well-pulverised clay or marl may be added with advantage, and if the soil be devoid of calcareous matter one-sixth of old mortar rubbish or chalk may be thoroughly incorporated. The border must have proper drains to carry off superfluous water passing through it. In planting make the soil firm about the roots, apply water thoroughly to settle the soil about them, and mulch over the surface with partially decayed manure about 3 inches in depth. For very early forcing Alexander, Hale's Early, and Royal George afford a good succession, and are reliable sorts; Lord Napier and Elruge Nectarines being suitable for planting in the same house. To ripen by June and onwards in succession houses Royal George, Grosse Mignonne, Noblesse, Dymond, Bellegarde, Barrington, Stirling Castle, and Late Admirable are the best, with Nectarines Elruge, Violette Hâtive, Pine Apple, and Victoria.

Pines.—Young growing plants should be arranged so as to derive the fullest benefit from sun heat, and as this diminishes during the daytime a corresponding diminution of temperature should take place at night, and gradually until it reaches the ordinary winter minimum—viz., 55° to 60° at night and 65° by artificial means in the daytime. Ventilate freely whenever the weather is favourable, giving particular attention to watering, discriminating between those grown or plunged in fermenting beds, as such afford more moisture to the roots than plants have in shallow beds of plunging material heated by hot-water pipes; hence no particular time can be given for watering, but under all conditions a weekly examination of the plants should be made, and whenever water is needed it should be given copiously at about the same temperature as that of the bed.

Fruiting plants require a night temperature of 70°, or 5° more when the weather is mild, 75° artificially by day, and ranging between 80° and 90° from sun heat, closing at 85°, maintaining a genial condition of the atmosphere by sprinkling the pathways as they become dry, with an occasional syringing over the plants on fine afternoons. Keep the bottom heat steady at 85° to 90°. Do not overwater at the roots, as this, along with a low temperature, tends to cause a serious defect in the ripe fruit—i.e., their cutting black at the centre.

PLANT HOUSES.

Stove.—Allamandas intended for early flowering, and consequently required to be cut back and started early in the year, should not receive more water than will prevent them flagging excessively, withholding it to such an extent as to check growth and insure well-ripened wood. Keep the plants near the glass, with a warm dry atmosphere; but the air of the house must not be so dry as to injuriously affect others, Ixoras especially being affected by a dry condition of the atmosphere.

Large specimen Ixoras may now be cut well back into the old wood, and if infested with scale or mealy bug they should be cleansed with an insecticide, repeating the operation every third day for ten days to effectually eradicate the pests before the plants form fresh growth, which would be likely to be injured by an insecticide strong enough to kill the insects. An opinion prevails that when once mealy bug has seriously infested stove plants it cannot be exterminated; but such is a mistake, as continuous perseverance and considerable

labour will accomplish it, but the half-measure attempts at cleansing are of no use. One washing does good, but it is effectual or otherwise according to its thoroughness. The insects must not only be reached on the most exposed parts of the plants, but in every crack and inequality from the top of the plants down to their roots. A simple dressing will not effect this, but it should be repeated at least half a dozen times, and at intervals of two or three days. Every particle of material likely to harbour the pests should be removed from the house; the woodwork, &c., washed three times with petroleum in solution with water (as used by Mr. W. Taylor in cleansing vineries). During the next two months is the best time to destroy mealy bug.

Urceolina aurea is now throwing up its flower stems, and though it flowers without the leaves it must not be allowed to become dry at the roots. Its fine pendant flowers—yellow, with green tips—render it very attractive and acceptable at this season. *Hippeastrum pardinum* is also flowering freely, and needs to be kept moist at the roots.



THE STEWARTON HIVE.

THE members of the British Bee-keepers' Association who read the article on this subject in your last number, must have been surprised at the statement made by Mr. Pettigrew, that "since the retirement of the 'RENFREWSHIRE BEE-KEEPER' no one has come to the front to take his place" in advocating the claims of the Stewarton hive. On the contrary, this hive formed the subject of a paper and a very full discussion not long since at one of the quarterly meetings of the British Bee-keepers' Association; and the Rev. E. Bartrum, who read the paper, published it with additions by the "RENFREWSHIRE BEE-KEEPER" and others, only last year. His little work, "The Stewarton, The Hive of the Busy Man," has had, I believe, a considerable sale. Messrs. Longman are the publishers, and the price is 6d.

Mr. Pettigrew will be interested to learn that in the new edition of "Modern Bee-keeping," about to be published by the British Bee-keepers' Association, the straw skep, in all probability, will not be wholly ignored, as the Committee will be asked to add a chapter, if not on the straw skep, at all events on sections arranged on the top of straw skeps. As many skeps cost no more than 1s. 6d., whereas a good bar-frame and its appendages cannot well be obtained under something like 7s. 6d. or 10s., it seems very advisable that the British Bee-keepers' Association should at all events recognise the skep, and by means of sectional supers lead those who are willing to aim at higher things. If they would do this they would, I am convinced, conciliate a considerable section of the bee-loving public, who consider that the bar-frame hobby is sometimes driven too hard.—A MEMBER OF THE BRITISH BEE-KEEPERS' ASSOCIATION.

PREPARING BEES FOR WINTER.

EVERY bee-keeper should now take advantage of the earliest opportunity that offers to prepare his bees for passing the long winter months in comfort and safety. At the risk of repeating advice oftentimes given before, we would endeavour to impress upon our readers the necessity of giving great attention to the proper arrangements of the exterior and interior of their hives while fine weather still permits such attention to be given. Many bees are still kept in the straw skep, and, compared with the wooden bar-frame hive as a winter domicile, the straw skep requires by far the least amount of trouble bestowed upon it to make it a snug and healthy winter residence. But the bar-frame hive has so many other advantages over the straw skep that we willingly give the extra labour and attention required to prepare it for the winter. Even the well-made skep ceases to be a healthy home for its much-neglected inmates in the hands of the careless bee-owner. We have seen straw skeps in a cottage garden left to pass the winter with the only protection a decaying sack and broken milk-pan. But let us hope that such a state of things will soon be unknown, now that so many are competent to give kind advice to the thoughtless or ignorant.

In preparing bees to pass the winter there are two things to attend to: First, the interior preparation of the hive; and secondly, the exterior. In the straw skep something may be done as to the interior arrangement. Stocks that have shown signs of being queenless should be examined and the state of the bees

ascertained. Stocks that are weak in numbers, as well as queenless stocks, should at once be united to healthy stocks standing nearest them. If the hives contain sweet young combs after the bees are cast out they should be well wrapped up to secure them from mice and moths, and utilised the following year for hiving swarms into them. If left as they were both the weak and the queenless hives would die out and the combs become a prey to vermin, or, being attacked by stronger colonies, be the cause of much commotion, and perhaps slaughter, in the early warm days of spring. Floor-boards should be scraped and placed slanting forwards, so that water may not lodge on them. If the bees have not sufficient food to carry them through the winter, say from 12 to 20 lbs. weight, then food must be given rapidly and by night by means of a feeding-bottle inverted over a hole cut in the crown of the skep. How to do it has been so often explained that we feel it a trespass on time and space to repeat directions; yet we are constantly meeting with beginners who ask the questions, "How is the syrup to be made, and how applied?" Therefore once more we will ask pardon for repeating the recipe.

For rapid autumn feeding put a pint of water to 3 lbs. of best loaf sugar and a tea-spoonful of salt. When boiling take off the thick scum which collects on the side of the pan farthest from the fire, the stew-pan being drawn back when the syrup begins to boil. Add a table-spoonful of vinegar, and let the whole simmer for ten minutes, then pour it off into a jug to cool.

To feed the bees with this syrup, place over a hole in the crown of the skep a piece of tin or zinc in which eight or twelve holes have been pierced with the point of a small French wire nail. Do not let the holes be large, or the syrup will run through and flood the hive. Fill a wide-mouthed bottle (a pickle bottle will answer the purpose) with the syrup; have a piece of flat zinc, or, better still, a child's toy dust-pan, place this on the top of the bottle filled with syrup, steadily invert the bottle and dust-pan. Now place the dust-pan on the perforated zinc over the hive, withdraw the pan, and the bottle of syrup is in position for the bees to feed from. Take great care that the zinc over the feed-hole is perfectly flat, and that the syrup be not made too thin. Over the bottle place an empty skep or large flower pot, and over this a pan or a hackle to shed water. As soon as the bees have increased the weight of their stores to that advised above wrap the skep up warmly, and disturb no more until the following February. There are many ways of doing this which will suggest themselves to bee-keepers in various forms. Some means should be employed to prevent the rain and snow from drifting against the skep. Anything waterproof gathered at the top and bottom, and drawn up under the pan and round the post on which the hive stands, leaving an entrance in front and ample ventilation under the pan above, will answer the purpose. This latter point should ever be attended to, otherwise the straw of the skep will become a sodden mass, and the bees killed by too much kindness (?). Entrances should be narrowed; half an inch long and a quarter inch high is ample space for a winter entry.

Now we come to bar-frame hives. When properly constructed these may be made as snug and as healthy for the bees during winter as the warm skep. The interior arrangement shall first be attended to. The space occupied by the bees for wintering should be much contracted. For a strong stock five or six combs at the most will be sufficient to leave, placing those with most honey on the outside of the allotted space at each end, and giving the more empty combs to the centre, that the bees may not have to cluster on cold honey, but be able to creep into the empty cells, and thus only have their cluster divided by the thin waxen bases of the cells. Winter passages should be made through all the combs; a small tube of tin or zinc will cut these out neatly. Hives should always be made sufficiently long to allow of the use of two dummies either in winter or summer. All our hives are so made, and as far back as the year 1875 we tried the experiment of working such a hive, using a perforated zinc divider in summer for working sections on either side the brood nest. These moveable dummies should now be drawn up close to the outer combs at both ends, and the spaces between them and the hive walls packed with dried sphagnum moss, chaff, or any other warm material.

The same system regarding queenless and weak stocks should be carried out as with skeps. Some hives will have more honey than they need, and others will have too little. We need not feed in the case of bar-frame hives when this happens, but take from the stronger and give to the weaker, only allowing to either sufficient to last until spring, and carefully keeping the other combs for expansion of the hives as breeding advances. Entrances, as with skeps, should be narrowed, and all made snug over the frames; a piece of ticking or canvas first, then either three or four squares of flannel, or, better still, a quilt made of any coarse stuff and filled with moss or chaff, leaving a hole in the centre to correspond with

the feeding hole over the cluster. When not required for feeding this central hole should be covered with a separate pad. It is better not to place too much covering above the frames—sufficient to keep the bees dry and warm, but not so much that evaporation is stopped. It is the accumulation of noxious vapours in the body of the hive that causes so many diseases that bees are heirs to. This moisture must be allowed to pass away first through the quilt, and then into the outer air through holes covered with perforated zinc made under the eaves of the roof. Care, therefore, should be taken to make the roofs sufficiently high to leave a space above the quilts. On no account should the roof rest on the latter.

If these directions be carried out no amount of cold or wet weather will hurt the bees; and providing they have been put up with plenty of young bees, which is a great desideratum, they will come out strong and well in the spring, when we will all look forward to a more propitious summer and a more profitable autumn than those which have passed away.—P. H. P.

TRADE CATALOGUES RECEIVED

Edward George Oakshott, Reading.—*Illustrated Catalogue of Cereals.*

G. J. Alberts & Co., Boskoop, Holland.—*Catalogue of Plants.*

S. Owens & Co., Whitefriars Street, Fleet Street, London, E.C.—*Illustrated Catalogue of Hydraulic Machinery.*

William Farren, How House, Cambridge.—*List of Roses.*

Joseph Schwartz, Lyons, France.—*Catalogue of Roses.*

L. Delaville, 2, Quai de la Mégisserie, Paris.—*Catalogue of Bulbs and Miscellaneous Plants.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (C. L. P.).—Our "Garden Mammal" contains sound and reliable information on the kitchen, flower, and fruit garden, and the best evidence of its usefulness and acceptability is its large and constant sale, upwards of thirty-six thousand copies having been disposed of. The price is 1s. 6d., post free 1s. 9d.

Early Alfred Peach (F. C.).—We are much obliged to you for your reminder, also for your notes. We have, however, investigated the subject, and find it is only occasionally that the leaves have glands; these when they are produced are round, but usually the leaves of this variety, are however, glandless.

Landlord and Tenant (J. C. S.).—We do not know of a previous case of the precise nature of the one to which you allude, nor is it possible for us to comprehend the case satisfactorily from the letter before us. Our view is that the tenant, after receiving the proper notice to quit, must relinquish his holding, and cannot claim any compensation. The question is one that can only be properly dealt with by a solicitor.

Incrustation on Flower Pots (B. D.).—The white incrustation to which you refer is incident to the material of which the pots were made, and, as you say, cannot be removed by washing. It is carbonate of lime. You may cover it with paint, but, so far as we know, cannot remove it. The best course to pursue is to procure pots from a source where there is not so much lime in the clay of which they are manufactured.

Renovating Vines (A. Z.).—An excellent method, and one which proved highly successful, of "refreshing" a Vine border was described on page 321 last week. If the same practice is not applicable in your case we will readily give you the best advice we can, if you will supply us with particulars of the age of your Vines and the size, character, and position of the borders. At present you afford us no data for answering your inquiry satisfactorily.

Lifting Fruit Trees (A. S.).—The time for lifting and adding fresh soil can only be determined by the condition of the trees. When trees make luxuriant growth and have little disposition to form fruit buds the roots are usually correspondingly strong and fibreless, and taking up and replanting such trees, adding fresh soil, and making it firm round the roots, would result in the production of a network of fibres near the surface, and the succeeding growth will be shorter-jointed, healthy, firm, and fruitful. Old trees that do not make sufficient growth through soil-exhaustion are similarly benefited by removing the old soil and applying fresh of a fertile character. The cultivator to whom you refer (Mr. Young) has had great success in renovating fruit trees, and has grown some of the finest fruit in the kingdom.

Liming a Garden (Idem).—So far as we understand the condition of the soil we believe a dressing of lime would be of much greater advantage than a further application of manure, but a mere dusting will be of no use—at the least half a bushel should be applied to each rod of 30½ square yards; indeed you may with advantage apply 8 bushels to the extent of ground you name. The lime should be obtained in lumps fresh from the kiln, placed in heaps, and covered

with soil as if covering Potatoes. In a few days the lime will swell and fall; it should then be spread and forked into the land, not, however, covering it deeply. It is an excellent plan to dig the ground roughly in the autumn, and to apply the lime and fork it in in early spring.

Araucaria Unhealthy (Aylesmore).—We have seen many such instances as the one you bring to our notice, and in almost every case where injury has not been caused by frost the degeneration of the specimens has been due to soil-exhaustion. The remedy is to remove the old soil down to the roots and beyond them, and if these are in a medium almost as dry as dust to apply pure water copiously, following a day or two afterwards with liquid manure. After the soil has been rendered sufficiently moist cover the roots with fresh compost, turfy loam, wood ashes, and decayed vegetable matter in equal parts, and surface the whole with manure. We have seen many specimens invigorated by this practice, and you cannot too soon apply the same remedy. In some cases the decay of the branches results from the roots having penetrated stagnant soil, and in this case drainage must be afforded as well as top-dressing.

Cropping Land (P.).—If you have had no experience in the work to which you allude you may be easily led astray by merely working from books. "What crops to grow" depends entirely on the demand for produce. The most practical reply we can give is to suggest to you the advisability of securing the services of an industrious man who has had experience in growing farm and garden crops for market, this being the only trustworthy plan for securing satisfactory results. Much money has been lost and disappointment caused by persons working by books alone, as none of them can compensate for the absence of experience in the work in question. You may clean your Carrot seed by rubbing it through sieves.

Pears Unsatisfactory (Gloucestershire).—If the varieties are good and the trees not old and worn-out they can without doubt be greatly improved by removing the old soil from the roots, adding fresh loam and wood ashes if procurable, and surfacing with rich manure. This would induce the emission of fibrous roots near the surface, and the good food they would absorb would result in healthier growth and finer fruit. In all probability many of the old spurs would also need removal, and the trees cleansed from any moss that may have grown on the branches by applications of lime, applied in the form of paint, and the colour toned with soot. Not knowing the precise condition of the trees we are unable to give the requisite details of management. Cannot you induce a good gardener in your district to inspect them and give you advice on the subject of their renovation? If you can do this we think it advisable, as you cannot make the exact state of the trees clear to us.

Celery Fly (Idem).—The maggots may be prevented by dilute applications of petroleum or frequent dustings of soot in the summer at the time the fly (*Tephritis onopordinis*) usually deposits eggs on the leaves. The only method of destroying the maggot when it exists is to crush the affected leaves with the fingers, removing the worst portions and burning them; this will limit the attacks of the enemy next year. Some small works such as you appear to require are published at 170, Strand, and can be had through a local bookseller.

Heating Unsatisfactory (A. E. B.).—Had you sent a sketch showing the connection of the pipes with the boiler and their arrangement, we might possibly have found some error causing defective circulation. If there has been no mistake in the setting of the boiler and disposition of the pipes, we are unable to suggest a remedy other than that of more steady firing. If you can get the pipes sufficiently hot without boiling the water violently, why fire so hard? If you cannot so heat the pipes, then proper provision is not made for heating the house satisfactorily. If you can supply us with fuller particulars, supplying the requisite data for our comprehending the matter, we will give the subject further consideration.

Spargula pilifera aurea (W. H.).—This is a pretty plant for carpet bedding, and is hardy or nearly so. Plants may be wintered in pans or boxes placed near the glass in a light frame from which frost is just excluded, ventilating freely during all favourable weather, occasionally removing the lights; or they may be placed on a shelf of a cool greenhouse. Unobstructed light is, however, essential, or the plants will become drawn and worthless. The *Spargula* belongs to the family Illecebracæ, being related to the *Herniaria glabra*, also used in carpet bedding.

Insects on Potatoes (Farnham).—We wish our correspondents generally showed as much care in packing specimens sent us as you have exhibited with your insects. The species is a Myriapod, named *Polydesmus complanatus*, not unusually found eating Potatoes, Carrots, and Onions, as noted by you, also Anemones and Pansies. Probably the moist summer has favoured the increase of this and other Myriapods. We have recently recommended for destroying these a solution of soft soap with paraffin. This, however, cannot always be conveniently applied, especially on an extensive scale. Soot and lime are popular remedies amongst some gardeners. But these creatures are admitted to be difficult to deal with without hurting the plants.

Caterpillars Destroying Cabbages (Mrs. St. John).—The specimen sent is a caterpillar of *Tryphaena prunibo*, the great yellow underwing moth, about half-grown. Caterpillars of this species feed upon the roots and underground stems of many plants in the kitchen garden, being discoverable from August until May. They become more or less torpid during winter. It has been recommended to hunt down the moth in its season—viz., July and August, as it moves sluggishly by day, and is conspicuous owing to its yellow "under wings." Frequently it flies to the lights in houses or public buildings. Amongst the Cabbage rows, where the insect is known or suspected to be doing mischief, the application of soot to the roots well dug in has been of proved utility. Some advise the careful application of gaslime which has been kept for a time; but probably the best application at the present time would be a solution of petroleum, half a fluid ounce of the oil being dissolved in a gallon of weak soap-suds, a little of this being poured round the plants; it will not injure them provided they are established. Plants that are being planted should have their roots immersed in a puddle of soot and soil in equal quantities before insertion.

Planting Vines (W. G.).—The right time for planting Vines in an outside border is in the spring after the Vines have fairly commenced growth, great care to be exercised in not injuring them. The roots also require care, and must not be dried by exposure. They should be spread out straight from the stem, covered quickly, watered with warm water, and mulched with litter. A rather low temperature should be maintained in the house until fresh roots are produced, 50° by fire heat being ample. We do not know whether you are aware of the fact that it is of little use planting young Vines in old borders—that is, without making stations of fresh soil. There is no better Muscat than the Muscat of Alexandria, but unless you are a skilled cultivator you will possibly not have highly finished fruit for exhibition in July. If you want Grapes next year you should get additional Vines, and either fruit them in pots or planted out, as it would be very unwise to crop the newly planted Vines that are in-

tended to occupy the house permanently the first season. On the contrary, they should be shortened now to a height that will not, when they are planted, reach above the base of the rafters, and then allow them to make strong growth under the full influence of light and air. If they mature stout canes they may carry a bunch or two the second season. If the canes are not shortened until late in the spring bleeding will ensue, therefore shorten them now, and you are far more likely to err by leaving the canes too long than pruning them too low. A length of 2 feet is better than 6 feet when young Vines are planted.

Keeping Grapes (Trickiest).—No one can say whether your Grapes will keep the longest by allowing them to remain on the Vines or cutting and "hotting" them. Everything depends on the equability of temperature in the house and the adaptability of the room for preserving the fruits. We have seen so many failures by "hotting" Grapes that we hesitate to advise amateurs to adopt the practice unless we are well acquainted with the circumstances of each case. You will not err, however, by letting the Grapes hang until they show signs of decay or shrivelling, as they are not late-keeping sorts; you can then cut them and try the alternate plan of preserving them. Whether your Vine border needs enriching or not it is impossible for us to say. If it does not, cover it with litter during the winter; if it does, top-dress with good manure.

Stapelia not Flowering (Idem).—The soil has been too rich, or food too abundant hitherto. Do not report the plant, give it little or no water during the winter, and keep it in the sunniest position you can on a shelf near the glass, and it will probably flower next year. We are unable to account for the state of your *Amorphophallus*. Keep it dry or nearly so throughout the winter, and try the effect of placing it in gentle heat in the spring.

Alnwick Seedling Grape not Setting (C. E.).—We have seen several examples similar to those you have sent and many others in the most satisfactory condition. The bunch before us shows undoubtedly that the fertilisation has been defective, and there is at least a probability that this variety does not produce pollen freely. A safe course for ensuring a crop is to dust the bunches with pollen from a Black Hamburgh or Alicante. There is usually a superfluity of these for shaking over the others, and if not the pollen can be collected on a soft camel's-hair brush and thus applied. Shaking the rods when the Vines are flowering, or drawing the hand or a rabbit's tail gently over the bunches, greatly facilitates the setting of the fruit. This variety is worthy of a little aid in this respect, and we believe Mr. Bell of Clive House adopts some such course as we have suggested and never fails to secure excellent crops.

Extirpating Worms (Lady Trevelyan).—In this case the safest remedy will undoubtedly be clear lime water, as this will neither discolour the paths nor injure the Box; indeed, it will be beneficial rather than otherwise to the edgings, as Box must have lime to maintain it in health. Place a few lumps of fresh lime in a tub, which fill with water; let it remain until quite clear, removing the scum that will form on the surface, then apply it to the walks copiously through the rose of a watering pot, and shortly afterwards the worms will rise to the surface and can be swept up, or at any rate if they do not come to the surface they will otherwise take their departure. By applying lime water to the paths as often as is needed they will be kept clean. The quantity of lime used is not material, as if half a pound to the gallon is used the lime water will be as strong as if twice that quantity were placed in the vessel; thus there is no danger or possibility of making the preparation too strong, or so strong as to injure Box edgings.

Hippophae rhamnoides (H. C.).—This shrub, also known as the Sea Buckthorn, is a member of the natural order Elaeagnaceae, and is found wild in this country. Its bark is considered astringent; its berries, which are numerous, small, and red or orange-coloured, have an acid taste, which is owing to the presence of malic acid. They are much eaten by the Tartars, and the fishermen of the Gulf of Bothnia prepare a rob from them, which imparts a grateful flavour to fresh fish, and they form the principal food of pheasants about the Caucasus. It has been discovered that the fruit contains a fatty matter of narcotic properties, 12 grains of which given to a moderate-sized dog prostrated its strength in a few hours. This confirms the opinion of the inhabitants of Dauphiné, who have always regarded them as poisonous. The shrub is planted in gardens, especially near the sea, as its silvery foliage and brightly coloured fruits are ornamental, and it is not injured by exposure to the sea air.

Names of Fruits (Spero).—1, Lincoln Codlin; 2, Norfolk Bearer; 3, Bess Pool; 4, perhaps a small fruit of Bedfordshire Foundling. (P. J.).—1, Williams' Bon Chrétien; 2, not known; 3, Flemish Beauty; 4, Autumn Nelis; 5, Belle Julie. (J. H.).—Jersey Gratioli. (Reader).—The large Pear is probably Gilgil; the Apples are worthless, probably never had names, and they certainly are not worthy of them, nor of space in the garden. (Beverley).—Although we stated last week that Pears should only be sent when approaching ripeness, as when green we are deprived of an important test, that of the palate, for determining the names, yet you have sent quite hard specimens, the numbers of which are not attached to the fruit as they ought to be, while it is impossible for us to undertake to keep fruit until it is ripe, or to guarantee that the numbers are not misplaced that are not made secure by the sender. At present your fruit is not in condition to be named. (G. B.).—1, Cellini; 2, Alfriston; 3, Beauty of Kent; 4, Wyken Pippin; 5, King of the Pippins. (S. O.).—The Pear is Beurré Superfin, the Apple Blenheim Pippin.

Names of Plants (J. G., Wantage).—Your plant is *Lycopodium volubile*, a native of New Zealand; it is interesting botanically, and we should be glad if you could send us a small living plant of it. The name *Supple Jack* is usually applied to a species of *Paullinia*. (H. C., Huddersfield).—The Orchid is *Pleione lagenaria*; the plant with orange-coloured berries is *Hippophae rhamnoides*, of which particulars are given above. (Shropshire).—1, *Limnathus Douglasii*; 2, *Chrysanthemum segetum*. (F. H.).—*Desfontainia spinosa*, of which an engraving was given in this Journal September 25th, 1879.

COVENT GARDEN MARKET.—OCTOBER 11TH.

OUR market has been well supplied during the week, growers sending their produce early, and Apples are slightly easier. Kent Cobs in good supply and selling freely.

		FRUIT.											
		s.	d.	s.	d.			s.	d.	s.	d.		
Apples.....	½ sieve	2	0	to	7	0	Lemons.....	case	20	0	to	30	0
Apricots.....	doz.	1	0	1	6		Melons.....	each	2	0	3	0	
Cherries.....	½ sieve	0	0	0	0		Nectarines..	dozen	2	0	10	0	
Chestnuts.....	bushel	0	0	0	0		Oranges.....	100	6	0	10	0	
Currants, Black..	½ sieve	0	0	0	0		Peaches.....	dozen	4	0	12	0	
" Red....	½ sieve	0	0	0	0		Pears, kitchen ..	dozen	0	0	0	0	
Figs.....	dozen	0	6	1	0		dessert.....	dozen	1	0	2	0	
Filberts.....	lb.	0	6	0	0		Pine Apples, English	lb.	3	0	4	0	
Cobs.....	100 lb.	0	0	45	0		Raspberries.....	lb.	0	0	0	0	
Gooseberries....	½ sieve	0	0	0	0		Strawberries....	lb.	0	0	0	0	
Grapes.....	lb.	1	0	3	0								

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Lettuces.....	score	1 0 to 1 6
Asparagus.....	bundle	0	0	0	Mushrooms.....	punnet	1 0 1 6
Beans, Kidney....	100	1	0	0	Mustard & Cress ..	punnet	0 2 0 3
Beet, Red.....	dozen	1	0	2	Onions.....	bch.	0 6 0 0
Broccoli.....	bundle	0	9	1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	2	6	3 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0	6	1 0	Peas.....	quart	0 10 0 0
Capsicums.....	100	1	6	2 0	Potatoes.....	cwt.	6 0 7 0
Carrots.....	bunch	0	4	0 0	Kidney.....	cwt.	6 0 8 0
Cauliflowers.....	dozen	2	0	3 0	Radishes....	doz. bunches	1 0 0 6
Celery.....	bundle	1	6	2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2	0	4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0	4	0 6	Scorzoneria ..	bundle	1 6 0 0
Endive.....	dozen	1	0	2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0	3	0 0	Shallots.....	lb.	0 3 0 4
Garlic.....	lb.	0	6	0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0	2	0 0	Tomatoes.....	lb.	0 2 0 4
Leeks.....	bunch	0	3	0 4	Turnips.....	bunch	0 2 0 4



POULTRY AND PIGEON CHRONICLE.

SEED CORN FOR AUTUMN SOWING.

(Continued from page 333.)

IN again alluding to the sorts of Wheat we do not intend to remark upon every one in use for growth in all districts, for many varieties are recognised only by a local or provincial cognomen. We have, however, yet to notice certain varieties which are highly approved by some of the most practical and experienced farmers, and although a statement of their successful growth must be estimated as valuable, yet it is frequently the result of exceptional circumstances, so that it is found extremely difficult to say which is really the best unless proved by experiment under the supervision of the home farmer himself. The success which certain sorts may have attained in some localities is often the result of influence of soil, climate, or cultivation, the extent of which cannot easily be ascertained. It is, therefore, very desirable that in the catalogues of seed-corn merchants, wherein the names of successful growers of certain cereals are given, that not only the name of the farms should be stated but the county also, because it is generally understood what are the climatic characteristics of certain counties or districts throughout the kingdom.

Still referring to white Wheat, we must name a very valuable white variety commonly grown in the home and southern counties upon gravel or sandy soils called "Trump," and we recollect perfectly the admirable samples which obtained the prizes at Guildford market in Surrey some twenty-five years ago; it was at that time a special favourite and esteemed as fine millers' Wheat, the growth being also in the interest of the farmer, doing well as it does on poor land, especially when sown out of Clover lea, because it is sure to tiller well in the case of loss of plant in an adverse winter. Hunter's White and Hertfordshire White are two very useful sorts of Wheat, but require warm soils, liberal cultivation and manuring, and are, strictly speaking, fairly adapted for enclosed and sheltered districts. They, however, as we have found them, are apt to grow unevenly at head, which affects the yield injuriously as compared with some of our more recently introduced sorts, such as Champion White and Imperial White Velvet Chaff. We have several white bearded sorts now offered, called Sheriff's, Pringle's, &c., of very good millers' quality, and they are well suited for growth in exposed districts, for they do not easily shed the grain under the influence of high winds, and will frequently answer best for late sowing or in early spring, as they are extremely hardy. Hallett's Pedigree White is of high reputation, especially as to cropping, because it represents the system by which it was produced—namely, from the

selection of the longest and most productive ears. We must not, however, be led away by the origin, for frequently samples are offered for seed without selection or care having been taken to prevent the mixture with other sorts, which is certainly of the highest importance, especially when we know that some dealers in seed-corn never attempt anything beyond selling what they buy. That style of business is, however, fast declining, to make room, let us hope, for those intelligent and enterprising men who offer nothing to our notice except it has been grown and selected under their own care, and we seriously advise the home farmer to accept the latter style of business only, as likely to yield satisfactory results.

We must now make one more reference to a sort of white Wheat called "Talavera," as being especially adapted for spring sowing, for when the season and harvest are favourable it is sometimes equal in quality and millers' value to the best Dantzic Wheat. It is said to be suitable when spring-sown for warm climates and light soils; but this is only correct when the climate is moist as well as warm, for in the western counties and parts of Scotland the climate is much more favourable to the growth of spring-sown Wheat than the eastern and south-eastern counties, in which it is an uncertain produce owing to the dry cold springs and often drought in summer, especially on all light soils. Before leaving the consideration of white Wheat, the question of straw grown per acre is now a matter of far more importance than it has been at any former period. Although red Wheat is said generally to produce more straw than white Wheat under the like treatment, yet it must be remembered that latterly our best selected white Wheats, such as Champion and Imperial, frequently produce from 8 to 10 cwt. more straw per acre than many other sorts, and of more value per cwt., especially in the cattle-grazing and dairy districts of the kingdom.

The advantage of growing red Wheat next deserves consideration, for it must be remembered that the growth of red Wheat is not confined within such narrow boundaries as the white, which can only be grown with success where the climate is favourable, whereas certain varieties of red Wheat can be grown wherever the growth of Wheat is possible. Probably we have no variety of Wheat yielding red grain which is so generally esteemed by farmers as the Red Nursery, if we consider the sorts of soil upon which it will flourish, and also further consider the preparation and cultivation of the land also. It is not only important that this Wheat is excellent for the miller, but that it will likewise maintain a plant with greater regularity under adverse circumstances than any other variety, and yield a full crop of grain upon the poorest hill farms, both on chalk and limestone soils. This Wheat is often, especially on some soils under a fallow or green crop preparation, more likely to be laid or lodged than some other sorts, being weaker in the straw under high cultivation, but nevertheless it usually fills the bushel well at threshing time. We must not forget, however, the celebrated Golden Drop Wheat, to which farmers in general are much attached, especially under moderate cultivation, for it yields a long strong straw, stands well, and yields well, and is a grain of great importance to the miller, because the grain is strong and heavy when well harvested, and valued for admixture in grinding with the weaker sorts or with foreign Wheat. Another good sort of red Wheat called Browick is also patronised by some farmers, and is so much like Golden Drop that it is entitled to the description just given of that sort. Red Lammas is a very old variety which we grew more than fifty years ago, and found it specially adapted for the thin soils on chalk and limestone. It yields fairly well, and the grain is strong but thin in the bran; the straw is long, but not strong, and readily goes down under high cultivation. Scholey's Square Head is an inferior light-weighting variety, and we cannot recommend it in the face of the red Wheats we have named. Professor Buckman's experiment in 1881 is an apt illustration of its use and value in comparison with some other sorts, being as follows in produce:—"Oakshott's Champion White, ten sacks per acre; Scholey's Square Head, six sacks per acre." As far as our experience goes this statement represents completely our estimate of the latter variety. April or Bearded—This is red Wheat strong in colour, and weighs well if properly harvested. There is a peculiarity about this variety which we find in no other, because it will bear later sowing, and is adapted in preference for growth upon newly broken-up soils out of woodland or inferior pasture. We have sown it in April on poor soils such as peat and sour woodlands, producing as much straw as it is possible to grow; and for sowing the first year upon newly broken land no cereal can equal it in value for that purpose—in fact no other cereal will produce a profitable crop until the land has been chalked, limed, or marled.

Such cereals as are commonly grown for fodder or mixed with

fodder crops may be now discussed, taking Rye first. There are two sorts—The Giant or St. John's Day, and the ordinary sort usually grown for folding-off with sheep. The ordinary sort is the best, because the most hardy. The St. John's Day Rye is, however, a better and heavier grain, and if the winter proves mild will yield a heavy crop of fodder at the earliest period, and is now very valuable for all purposes where the best straw is required. Winter Barley is of two sorts, called Bere and Bigg. The former is a white grain, the latter is black. The former is well adapted for mixture with Vetches to protect them in winter and hold them up in the spring. The latter is the earliest winter cereal we know, and has a strong broad flag, which makes it specially adapted for mixing with the small early winter Vetches. Winter or Tawney Oats have also a value for growths as fodder or mixing with green crops. All these fodder cereals, although they vary somewhat in their habit of growth, are more or less valuable to ripen as a sale crop, especially in consequence of the land being available after harvest for root crops of various kinds. After the removal of the cereal crop the securing of both grain and straw (the latter being very valuable) in first-rate condition being almost a certainty even in our uncertain climate.

We must now refer to the seed of leguminous plants, such as winter Beans and winter Vetches. The home farmer should consider the advantage of sowing the Improved Winter Beans of a selected variety in comparison with the ordinary samples on the market, in which it has been often found that the common Horse Bean has become mixed, which may not, however, be always detected until the winter frosts have destroyed a portion of the plant, entailing great loss as well as disappointment. The Improved Winter Bean, when true, will endure any adverse weather in this kingdom. It is in this respect of great consequence, for although our midland, western, and northern districts are favourable to the growth of spring Beans, yet the mixed soils situated in our southern and south-eastern counties are more uncertain in the produce of spring Beans: hence the value of the winter variety, for these will generally succeed where the spring Bean would fail through the difference of climate. It is a matter of great consequence that the Bean as a fallow crop should succeed, in order that the great expense of a long fallow may be avoided. The same or similar advantages are to be derived in the case of winter Vetches, which, as a fallow crop, are correctly estimated by those agriculturists who maintain a large summer flock upon strong land, where it is impossible to carry out a system of sheep-feeding on arable land in the winter months; and as winter Vetches frequently fail in consequence of the seed being mixed, it becomes extremely desirable that the seed should be obtained from persons who are responsible for its purity through selection.

WORK ON THE HOME FARM.

Horse Labour.—Much of this work is required at this time of year, especially where land is farmed under the Norfolk or four-course rotation of cropping, for the Wheat being all sown out of Clover or grass lea, the whole of the land intended for Wheat has to be manured from the farmyard or boxes. At this time it is, however, a good plan to anticipate this extra work to some extent, by manuring the Clover seeds in the first winter or early spring, as it makes use of the manure whilst it is fresh and strong, and at the same time equalises the horse labour of the year, and reduces pressure at certain periods of the year. In ploughing and pressing Clover leas drilling is best accomplished by the press drill, which deposits the seed in the grooves formed by the rings of the presser, or, as weeds seldom injure Wheat sown after Clover lea, the seed may be well sown broadcast, and the greater portion of which will then fall into the presser grooves, and will surely be buried a good depth and be more likely to secure a regular plant. We, however, object to working down the lea ground and then drilling the seed with the ordinary drill, for in that case the seed is never buried deep enough to give the plant a firm hold on the soil. Besides which, it is more subject to the attacks of wireworms and other insects, and when severe frost occurs the rootlets of the plants are more exposed and injured than when the seed is put in with the press drill or sown after the presser, in which case less seed is also required. Fallow land, or land after fallow crops intended for Wheat, and where the land lies flat and cold, should now be ridge-ploughed, and if the land is very dry it may with advantage be treated in the same way as recommended for the Clover lea ground; for unless the land is close and heavy after the autumn rains it will be sure to shrink, and the plants in the next month of May will frequently become root-fallen and the crop lodged or laid. But under any circumstances the fallow preparation always encourages the growth in the spring of those weeds which are indigenous to the soil and hurtful to the Wheat crop. It is, therefore, necessary, whether the seed is deposited by the press drill or ordinary drill, that it should be done at from 10 to 12 inches apart between the rows. We view this as the only way for the home farmer to be master of the position, for weeds are sure to occur, and besides which, on strong soils the Wheat plant will often look yellow and sickly at the end of the month of April. In either case, if the Wheat land

cannot be horse-hoed and hand-hoed between the drills, the crop will be injured past recovery, the effect of hoeing being not only to destroy the weeds, but also to break up the close cold surface of the land to give renewed life and growth to the Wheat plants, without which the application of nitrate of soda will only make the weeds grow and stifle the Wheat plants. If the seed time should be delayed let it be upon the Clover lea ground, as the first fortnight in the month of November on warm soils is quite soon enough. Lifting the Potato crop should now be completed, and where there is a considerable acreage to take up it is greatly facilitated by the lifting frame attached to the ordinary plough with the turn furrow detached.

Hand Labour.—Let the hedge-trimming be now completed, as well as cutting the coarse grasses on banks or borders of the dykes, and also in the newly planted Fir plantations, because these materials are useful for covering Mangolds and Potatoes in the store heaps; and in the absence of seaweed, which is best of all coverings for root heaps, it saves straw, which is now a more important produce than at any former period. Hence the advantage of carefully ricking the straw cavings and chaff at the time of threshing the grain, for it should be as carefully thatched and preserved whether for sale or for feeding on the farm as if it was the best of hay. As soon as the odd horses and carts have completed the removal of couch, stubbles, and rubbish from the autumn fallows, the work of taking up the Mangold crop may proceed at once, in fact, without horse labour at first, if the land should be soft and not able to bear the treading and tracking of the horses and carts. In fact, it is only necessary to employ the men and women, as we approve the heaping and stacking in the field by clearing a space of about 10 yards each way in forming each heap, and we neither sow Wheat after Mangolds or recommend it to the home farmer, because we prefer to sow Lent corn in the spring. It is, therefore, at present a question of hand labour only; the horses are not required for the purpose during the busy seed time, and the heaping of roots in the field may be quickly done. In the future, whether the roots are required to be fed on the land either in whole or in part, they are well placed, and may be removed if required to the cattle yards, or any part of the farm when convenient and in suitable weather. If allowed to remain in the field beyond a certain time the heaps may be covered with straw or seaweed and a little earth; in this way they never heat or decay as is sometimes the case with large store heaps. The greens and tops of the Mangolds may be carted away for feeding store cattle, breeding sows, &c., in the yards.

Live Stock.—The young calves and yearling heifers intended for the dairy in the future should now be removed into high and dry pasture for their night lair, letting them feed in the daytime in the good aftermath of the low-lying meadows; but at night they may be given with advantage 2 lbs. each of cotton cake, this will tend to keep them healthy until the time for hay-feeding with roots arrives. The cattle which were grazing during the summer have now been sold, we will suppose, and those not yet ripe for slaughter should be put into the boxes and well fed in readiness for Christmas. On those farms where the bullocks are purchased for winter feeding and fattening we do not like to buy poor low-conditioned stock, preferring to attend the various cattle markets and select the best-conditioned animals, but especially those just beneath the butcher's quality, for at this time many animals half fat are offered and refused for killing. Let the home farmer buy these and feed them in the boxes liberally, buy them as low as possible in price, but buy them, for they will pay more than by any other plan—at least this is the result of our experience. The dairy cows now the grass generally is become stale in their summer quarter should have the run and aftermath of fresh pastures or parkland, or otherwise have a supply of Cabbages or other roots to eat with cotton cake meal in their troughs at milking time, night and morning; in this way they will continue to furnish a supply of milk until the latest period. Those cows which have been grazed and sold fat this autumn may now be replaced by the purchase of a corresponding number of first-class cows just ready to calve or with calf at foot. The sheep stock, whether of ewes, tegs, or wethers, are more healthy and in finer condition at this time than we have known them for many years. Those intended for root-feeding should whilst in grass have a few cut roots mixed with cake or bean meal in troughs daily; they then do not find any ill effects from being removed suddenly from grass-feeding entirely to root-feeding entirely. This is especially important for the health of the sheep.

OAKSHOTT'S CHAMPION WHEAT.—We are requested to state that this Wheat was not selected from Morton's White, as suggested on page 332, but is the produce of one ear (variety not named) selected by Mr. E. G. Oakshott in Essex.

AGRICULTURAL LECTURES.—Courses of lectures on the "Principles of Agriculture" will be delivered during the autumn, winter, and spring months by Mr. Bernard Dyer, F.C.S., F.I.C., in connection with the City of London College (Monday evening, 7 to 8); and also in connection with the East London Union for Advanced Education at Stepney (Monday evenings, 9 to 10). Particulars may be obtained from the Secretaries of those Institutions, at 66, Leadenhall Street, and at "The Schools," Dempsey Street, Jubilee Street, E., respectively. The classes at Stepney are open to ladies as well as to gentlemen.

POULTRY AND PIGEONS

POULTRY NOTES AT THE DAIRY SHOW.

THE Exhibition at the Agricultural Hall is always regarded with considerable interest, as being the first occasion when the quantity and quality of the chickens of the year can be estimated with any certainty. This year it was some weeks later than in 1881, and the birds are consequently more matured. There was an increase of about a hundred in the poultry entries, but a slight decrease in the number of Pigeons. The classification, as usual, commenced with Dorkings. These had 125 pens in six classes, and were, on the whole, of good quality. The first for Coloured cockerels went to a very large raw-looking bird of Mr. Parlett's, too long in leg for our taste. We much preferred the Earl of Winterton's second-prize cockerel, a squarely built short-legged one of true Dorking type. The winner was not without admirers, as, though entered at £10, his owner had to bid up to £22 for him at the auction to prevent a sale. Of the rest we much liked Mr. Butler Smith's and Mr. Cresswell's birds. The former was v.h.c., the latter quite unnoticed. In the pullet class Mr. Cranston stood first and second with good birds rightly placed notwithstanding some slight duskiess in foot. Third (H. R. Peel) pressed the winners pretty closely. Mr. Cranston was again to the front with Silver-Grey cockerels; indeed, most of the prizes for this variety went to the north. The Dorking medal went to the winner here, which we thought a mistake, as, although of good size and silvery, he was splashed on breast and seemed a trifle round-backed. Of the actual winners we thought Mr. Annand's first-prize Silver pullet most worthy of the distinction, though the second-prize Coloured cockerel would have been our choice for the medal. The prizes in the variety class went to Whites of no special merit.

Cochins had eighty-eight entries in six classes. Buffs were good. The winning cockerel (Mitchell) also took the medal. He was the most finished of the lot, but wanted more size and carried rather too much tail. Second and third (Proctor), though a trifle light in breast and showing a few false feathers on foot, were fine all-round Cochins of the right sort: v.h.c. (Lady Gwydyr) very shapely. In pullets Mr. Proctor again stood second and third with birds of the true type, round and fluffy. First, though of even colour and good in profile, wanted width to make a Cochin. The Partridge cockerels were hardly ready. The winner (Brett) was large and promising, though showing a white feather or two in tail. Second (Mrs. Turner) in better bloom, but smaller. Third (Nicholls) will take time to develop. We could not agree with the awards in the Partridge pullet class. First (Southern), though nicely marked and of good colour, had a very ugly tail. Second (J. Wood), in a small degree, and third (Mrs. Goodall) to a much greater extent, showed white edges to the plumage. This we regard as a very great defect. Mr. Wood's highly commended pullet easily topped the class for size and shape combined with fair marking; while Mr. Nettlefold's unnoticed bird, though young and unformed, showed good promise as to other points, and was splendidly marked. The variety class was entirely composed of Whites, which call for no special comment.

Brahmas had 127 entries in five classes. Dark cockerels were not of exceptional quality. Sir Henry Thompson's birds were first and third, and the Brahma medal also went to the winner here. His best points are his head and comb; his worst, length of leg and want of shank feather. For the rest he is of average merit. Third, very like first, though better on shank, but tailless at present. Second (Breeze), good in most points, but very loose in wings. The pullets were better as a lot than the cockerels. There were thirty of them, and no less than nineteen were mentioned. Sir Henry Thompson again headed the list here with a well-shaped beautifully marked bird, whose only faults were brown, and plenty of it, on shoulders, and want of middle toe feather. Second (Mitchell), of pure light grey ground and fine shape, but wants distinctness of marking. Third (Maddison), large, shapely, and well-feathered, with a very well-marked breast, but showing a mixture of two colours on body: v.h.c. (Comyns), pure colour, but wants just a little more marking. Light cockerels were only an average lot. The winner (Breeze) was good in most points, but seemed rather overshadowed. Second (Sir H. Thompson), also a good one, though not up in tail and a trifle long in leg. Third (G. H. Wood) we liked as well as any in the class but for his black hocks. The pullets were much better than the cockerels, and showed a distinct advance in purity of white. The winner (Birch) was best in size, shape, and feather, though hardly distinct enough in hackle marking. Second (Mitchell) was the best of the class in hackle. Third (While), another good pullet, though showing rather much black on back: 311 (Nettlefold) a really beautiful pullet, but without a tail.

The Langshans still seem in want of a settled standard. First in cockerels (Harris) was large, long in leg and back. Second (Rippon) was small, short in leg, and had a short cochiny back; while third (Orme) was wanting in the one point common to first and second—lustre. Spanish cockerels were a better lot than we have seen for some seasons. The winner (Le Sueur) had a face and lobe of beautiful quality, and but for a fold in the lobe at the ear would be hard to beat. Third (Brown) was our choice of the class. His face is some-

what larger than the winner's, while he has a large fine lobe well spread out. He was not, however, well shown. Second (Street), another good face and lobe, but not laid on so well. Pullets after the winner (H. Brown) were not a remarkable class. Andalusians were few. The first pair (Boissier) were in fine condition and nicely laced, though the pullet was somewhat mixed in ground colour. The winning Minorcas (Harwood) had fine white lobes, red faces, and good glossy plumage. Second (Physick) were somewhat rough in lobe, though otherwise good.

The classification of the French breeds was not so liberal as might be expected in a show where useful qualities are supposed to claim special attention. The winning Houdan cockerel (Jennings), to which also the medal was awarded, did not suit our taste. His plumage was beautifully glossy, but he was hollow-chested, and what with crest and a huge comb he was almost blind. Second, belonging to the same owner, was a grand bird in all points, and far before the winner. The class generally was good, as also were the pullets. First here again easily went to Mr. Jennings with a very fine pullet. Second (Mrs. Lane) not so large, but good in points. Third (Lee) too light for a pullet. In the other French class first (Jackson) and third (Ward) were good Crèves, while second (McMorland) were La Flèche of good size with clear lobes.

Hamburghs, though few in numbers, were of good quality throughout. The medal went to Mr. Fielding for a neat well-marked pair of Gold-pencils. Premier honours also went to Mr. F. Heap for Golden-spangled, to Mr. Jagger for Silver-spangled, to Mr. Rawnsley for Silver-pencils, and to Mr. Ryman for Blacks. These last were in a bad light, which perhaps prevented Mr. Kellaway's beautiful pair from taking the position which we thought their due. The Game classes were very poorly filled, and the exhibits were of no great merit. The most noteworthy were Mr. C. Gibbs' Black Red cockerel which won the Game medal, and Mr. Garne's pullet of the same colour claimed at £20. The winning Malay cockerel (Rattinshaw) was an exceptionally good bird in all points, he was of dark red colour. The Polish classes contained some very good birds. Mr. Beldon's winning Golden-spangles were quite free from white in crest. The winners in the variety Polish class were both white-crested, and we specially noted the length of the cockerel's crest feathers.

Leghorns hardly seem to advance in favour so much as formerly. There seems to be a difficulty as to the lobes. Yellow was the prevailing colour, and if the white is so very difficult to obtain it seems a pity to sacrifice other points to lobe. The winning Browns (Hurst) were not quite free from the prevailing fault though otherwise good. In the White class we much preferred second (Keen) to first (Bradbury), as being clearer in colour and better in lobe though younger. Plymouth Rocks had twenty-one entries, and were of good quality. First (Turner), second (Ainsworth), and third (Bradbury), were of good colour and were rightly placed, although none of the cockerels had their tails up. In the Any other variety class first went to Mr. Beldon for Sultans, second to the Hon. and Rev. F. Dutton for Aseels, and third to Miss Rose Hubbard for Scotch Greys.

The Bantam classes were fairly filled. We have only space to note that the chief prizes in the Game classes went to Mr. Morgan for a smart Black Red cockerel, to Mr. Nelson for a tiny pullet of the same sort, and to Mr. Waters and Messrs. Stretch respectively for a Pile cockerel and pullet. Mr. Phelps won in Blacks with a neat clear-lobed pair, while Messrs. Crowther's Whites stood at the head of the variety class.

The cross-bred table poultry class had twenty-three entries and was well judged. Mrs. Dent took first for a pair of Dorking-Game pullets of fair size, plump, and hard in feather; second (Mrs. Hayne), were Dorking-Houdan pullets; and third (Metcalfe), Dorking-Brahma cockerels. In Ducks Pekins were most numerous and had twenty-seven entries. First (Kellaway) were of fine colour and good shape. The winning Rouens (Wakefield) also deservedly took the medal for Ducks. Messrs. Fowler headed the list in Aylesburys with a specially fine pair, while the Embden Geese shown by these gentlemen were of such great size as to provoke some unfounded doubts as to their being of this year's growth. Turkeys were well represented.

The awards were made by Messrs. Burnell, Leno, Teebay, and Tegetmeier. Mr. Nicholls acted as Steward. The penning, feeding, &c., were undertaken by Spratts' patent, and were all that could be desired.

THE CRYSTAL PALACE SHOW.

THE great schedule is before us, increased to 308 classes! If an average of twenty entries be allowed to each class—no improbable number—there will be an exhibition of over six thousand pens of birds! There seems no great novelty in the poultry department. Dorkings, Cochins, Brahmans, Spanish, French, and Hamburghs and Game have as nearly as possible the same classification as last year. There is a class for Indian Game, but none for Aseels. We cannot understand why "Black and any other colour Polish," which are all shown together, should have but two classes, while Golden and Silver each have four.

Sultans and Silkies have disappeared from the list. It seems a pity that the promoters of a show on such a grand scale cannot

afford to recognise every well-known breed of poultry, even though the loss of a few shillings may be entailed by a small entry; even this would hardly be the case were the chief fanciers of such breeds invited to aid.

There is a twenty-five-guinea challenge cup for the best Game Bantam, which will become the absolute property of anyone who wins it three times in seven successive years. We are much puzzled with the Duck classes, for in addition to the open classes there are four for drakes and Ducks "bred in 1881." This must surely be a misprint for 1882.

There are again two cups (presented by the proprietors of the *Live Stock Journal*) and other prizes for respectively "the heaviest pair of chickens cross-bred, or any pure breed suitable for the table," and "couple of cockerels or couple of pullets cross-bred table fowl."

The Pigeon division is the most wonderful part of the schedule. There are twenty classes for Pouters, seventeen for Carriers, twenty-three for Dragoons, sixteen for Antwerps, and thirteen for Turbits. The classification for the latter variety is a great improvement on former years. By degrees the Toy varieties are getting their due; we hope in time to see them as well subdivided as are Pouters and Carriers. The chief novelty, however, in the Pigeon list is the addition of classes for several varieties which have never or seldom before had them. Among these are Turbiteens, Blondinettes, Satinettes, Fire, Frillbacks, and German Toys. We regret to miss the classes for collections, which we have often admired at the Palace. It is, on the whole, a wonderful schedule, and we look forward to seeing a show worthy of it.—C.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held on Wednesday, October 4th, at the Charing Cross Hotel. There were present the Hon. and Rev. F. G. Dutton (in the chair), the Earl of Winterton, and Messrs. G. B. C. Breeze, A. Comyns, H. R. Dugmore, S. Lucas, and L. Norris.

ELECTION OF MEMBERS.—The following new members were elected: Lord Grimston, Cell Barnes, St. Albans; Rev. Chichester A. W. Reade, M.A., LL.D., Chaplain's House, Banstead Asylum, Sutton, Surrey.

STANDARD OF EXCELLENCE.—Several dates were fixed for meetings of the Sub-committee having in charge the preparation of the Standard of Excellence.

SHOWS UNDER CLUB RULES.—The Secretary reported that the following Shows were to be held under Poultry Club rules: Banbury, Dorchester, Exeter, Kendal, Market Rasen, Stanhope *via* Darlington, and Southport. Subscriptions were granted in aid of the funds of Banbury and Dorchester Shows.

NEXT MEETING.—The date of the next meeting was fixed for Wednesday, October 25th, at the Charing Cross Hotel at 2 P.M.—ALEX. COMYNS, Hon. Sec., 47, Chancery Lane, London, W.C. October 7th, 1882.

OUR LETTER BOX.

Cows Eating Beans (*A Cow-keeper*).—In the event of cows eating whole horse beans in any considerable quantity they would injure the health, and probably in some instances prove fatal, precisely in the same way that acorns have often affected cows, for being ruminating animals they cannot be digested if taken in large quantities in the whole state.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882. October.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	1	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
					S.W.							
Mon.	2	30.885	62.6	69.5		53.4	70.4	50.3	108.8	54.7	0.016	
Tues.	3	30.072	57.4	53.2	W.	55.0	67.6	47.7	116.7	39.8	0.149	
Wed.	4	30.214	53.8	51.3	W.	51.7	64.3	48.5	112.0	45.5	—	
Thurs.	5	30.470	55.3	52.1	N.N.W.	53.8	61.0	43.8	89.3	40.2	—	
Friday	6	30.477	53.1	50.8	N.	53.2	61.6	46.4	105.3	41.7	0.020	
Satur.	7	30.189	57.3	53.8	N.	53.3	62.5	52.5	99.2	49.2	0.083	
		30.090	54.2	52.7	S.E.	53.7	64.0	50.8	94.3	49.8	—	
		30.200	56.2	53.5		53.9	64.5	48.6	103.7	45.8	0.268	

REMARKS.

1st.—Extremely warm, damp morning; fine warm day.
 2nd.—Fine, bright, and warm.
 3rd.—Fine, bright, and warm; clear moonlight night.
 4th.—Fine and bright early; dull cloudy day with a little rain.
 5th.—Bright in early morning; cloudy day, with occasional showers.
 6th.—Cloudy and dull throughout.
 7th.—Dull at first; day fine but hazy; lightning in evening.
 Temperature higher than in the previous week, and both it and mean pressure considerably above the average.—G. J. SYMONS.



19th	TH	
20th	F	
21st	S	
22nd	SUN	20TH SUNDAY AFTER TRINITY.
23rd	M	
24th	TU	Sale of <i>Lilium auratum</i> at Stevens's Rooms, Covent Garden.
25th	W	

MICHAELMAS DAISIES.

PERENNIAL Asters, or, as they are popularly termed, Michaelmas Daisies, are late this year. Michaelmas-day found more of them in bud than in flower. Many of the plants in this second week of October have not yet opened a flower, and some, strange to say, show no signs even of a bud; still the splendid weather we have lately had has made some of them very gay. The name Michaelmas Daisy belongs properly, it is said, to one of the North American species, *Aster novi-belgii*, but is generally applied indiscriminately to all the many forms of perennial *Aster*, *Boltonia*, *Galatella*, and some other names, of which some of the species flower early in summer and are over long before Michaelmas. Generally, however, the class is characteristic of early autumn, and the most desirable of them are in average seasons at their best about the beginning of October.

The ease with which they may be cultivated, even in town gardens, is one of their chief merits; but it is a mistake to think that they do not require any attention. Though they may exist and flower in any soil or situation, a good rich soil and a warm sunny situation adds greatly to their beauty. They also require to be pulled to pieces after flowering—the stronger kinds every year, and other kinds according to their increase—and replanted, not more than three stalks being planted several inches apart in the same bunch. In this way the lateral branches find room for development, and the flowers are not all crowded together at the top of the stalk. The increase of some Asters is prodigious. We have seen wonderful calculations of the produce of a pair of rabbits in two years, reckoning by a sort of compound interest, but a single shoot of a vigorous species of *Aster* may be made in the same time to produce a sufficient number of plants to stock all the gardens in a county. Some of them, if left to themselves, become troublesome weeds, though others, it is true, require encouragement to persuade them to grow; but these are exceptions.

It is easier to obtain a collection of plants of Asters than to get their right names, and it is better to select Asters for purchase by sight than by name. It is said that Professor Asa Gray is the one special authority for their names, and that a monograph of the genus is now being prepared by him, to which many of us are anxiously looking forward. At present it is hardly possible to get Asters correctly named. I have been guilty occasionally of sending the same flower to three different authorities, each of whom have given it an entirely

different name. Out of about sixty species or varieties grown in this garden there are hardly ten about the names of which there is anything like a general consent. Many Asters are worthless as ornamental plants; other kinds are of bad habit, but are useful for supplying cut flowers, and a vase filled with well-selected and well-arranged *Aster* flowers will not be despised as a decoration by those who have good taste. Though I cannot guarantee the correctness of my names, I will mention twelve of the best of the large collection of Asters now in flower in this garden.

The first and best I bought two years ago from Mr. Robert Parker of Tooting by the name of *Aster amethystinus*. It has large semi-double flowers of a clear pale slate blue. It is tall, with spreading branches, and the flowers are well displayed. It increases so rapidly, that besides having it all over my garden I have distributed it to at least twenty other gardens. Next I place the form I call *A. novi-belgii* No. 1, the best variety of that variable species. It has flowers of nearly the same colour as the last, but more thickly set, and with a single row of outer rays. It is rather earlier in flower. These two grow from 5 to 6 feet high, according to the situation, the first being the taller by a foot. Then comes *A. Amellus* and its variety *bessarabicus*, closely allied to one another, and having relations hardly distinguishable, sold to me under the names of *cassubicus* and *amelloides*; but for gardening purposes I class these four as one. The height is about 2 feet, the flower heads broad and thickly set with flowers, and the colour light purple. The fourth and fifth places I assign to the two best forms of *A. novæ-angliæ*, the purple and the pink, sold as "*ruber*," but being in reality a good bright clear rose colour. There are several varieties of both these forms, differing in colour, in the time of flowering, and in the mode of opening their flower. All of them are liable to the objection of being too tall, and of flowering only at the top of the stalk, not making many lateral branches.

Next comes *A. lævis*, a fortnight earlier in flower than the last, and having the merit of flowering from the summit, which is 5 feet high, nearly to the ground; but the spikes are loose, and the flowers look better when gathered and massed together than when growing. *A. versicolor* is a most effective plant for garden display, perhaps beaten by none. It grows 8 feet high, and the mass of flowers is immense. It changes each flower from white to light purple, but neither the white nor the purple is very pure. Next in merit comes an *Aster* for which I have never been able to get a name at all, though it resembles one sent to me by Mr. Lynch of Cambridge, which he calls *A. æstivus*. I have had it from three or four sources, mostly cottage gardens. In habit it resembles *novi-belgii*, and in colour *Amellus*.

These eight are all large-flowered, and I now mention an *Aster* about 4 feet high with an elegant curved feather-like growth and abundant small flowers, either pale mauve or creamy white, for there are two distinct forms. It has heart-shaped leaves, and is sometimes wrongly called *cordifolius*—a name which belongs to a coarser plant. I suspect that *paniculatus* is its right name. It is common in cottage gardens, and worth growing in any garden. *A. nivus* is a plant with large nearly pure white flowers. It was given me with that name by Mr. Harpur Crewe, who expressed uncertainty about its correctness; but the flower is good, though not produced in long succession. It grows about 3 feet high. *A. Chap-*

manni must not be omitted on account of its very elegant growth. It is about 5 feet high, with horizontal pendulous branches, and well-dispersed light mauve flowers of no great size or merit in themselves; it is, however, a very distinct kind. After looking through a long list, the claims of *A. horizontalis* seem to deserve the last place in the dozen. It comes into flower late, and forms a dense bush from 3 to 4 feet high, covered with small flowers with a red purple centre and dull white outer rays. It lasts a long time in flower, and is not like any Aster before described, though it claims several other names.

Besides these there are many curious and distinct Asters, amongst which are *A. oblongifolius*, very broadly branching, with irregular-shaped flowers of dull purple. *A. sericeus*, with silvery satiny leaves and weak wiry stems; more elegant and delicate than ornamental. *A. sikkimensis*, which sends out its stems few and far between, but surmounted with good broad umbels of very regular flowers like those of a *Cineraria*. *A. sibiricus*, having the largest flowers of any, like those of *Stenactis speciosa*, but bearing very few of them. *A. ericoides* with linear leaves, and smothered late in autumn with small white flowers. Two occur to me which I saw in flower at Kew in the beginning of August, neither of which I possess: *A. japonicus*, chiefly remarkable for its earliness, and *A. saluginosus*, a fine ornamental flower, which I cannot find in the catalogue of any English nursery, or I should at once buy it.

I cannot tell why I have forgotten *A. longifolius*, surnamed *formosus* (the beautiful), of which I have more plants in my garden than of any other Aster, and which I think is generally the most admired. It is certainly entitled to the third or fourth place in the best dozen, the thirteenth being added to compensate for carriage. But those who have an opportunity should study the Asters now in flower at Kew, where they are correctly named. We who live a long way off envy those who have the chance of doing so.—C. WOLLEY DOD, *Edge Hall*.

[The large bunches of flowers which accompanied these notes afforded satisfactory evidence of the great value of perennial Asters for garden adornment at this period of the year.]

SELECTIONS OF FRUIT.

MANY owners of small gardens desirous of growing some fruit will be much exercised in the approaching planting season as to what is best to plant, weighing the merits of various sorts as set forth in the long puzzling lists, and at length ordering what may very possibly prove unsuitable to their tastes or requirements. I for one must plead guilty in this matter, and by way of atonement will try now to turn Mr. Wright's hint of picking up a pin to account by pointing out a few varieties of fruits of sterling merit suitable for the wants of a very numerous class of Journal readers.

Strawberries ought to have been planted long ago—in July or August, but I may usefully note here a few of the best. By the way, which is the best variety of Strawberry? If I name President many will agree with me, perhaps more than if I chose Sir Charles Napier. Either sort may safely be taken for a general crop, and if a very early one is wanted take Black Prince, and for a late one Frogmore Late Pine. These three will suffice for ordinary purposes, for they are of proved excellence, and will not fail. But for a novelty or two, equally good in their way, take for flavour Dr. Hogg, and for size Cockscorn. See that the soil of the Strawberry bed be well drained, deeply stirred, thoroughly enriched with manure, and if at all close or heavy in texture rendered sufficiently open by a liberal admixture of coal ashes, and there will be no difficulty in obtaining crops of excellent fruit.

Apples for early use in the kitchen will be afforded in abundance from a tree or two of Duchess of Oldenburgh, or say one tree of it, one of Keswick Codlin, another of Warner's King, and another of Hanwell Souring for a succession of good cooking fruit. If there is room for two more take Small's Admirable and Striped Beefing, and you will have half a dozen of our most useful Apples. You may only be able to indulge in one tree for dessert; if so, Margil will be the one to plant. It hardly ever fails to bear a full crop of its handsome richly flavoured fruit, comes into bearing early, and continues doing so upon very small trees. If an earlier sort is wanted Kerry Pippin is excellent, and for a second later sort Cox's Orange Pippin.

Pears are so much affected by local circumstances of soil and

climate that not many varieties may be recommended with any degree of certainty, but there are more than enough for our purpose. Williams' Bon Chrétien is an autumn gem of the first water, closely followed by Fondante d'Automne. Plant the first if you have only room for one autumn Pear. Jewess will afford some good Christmas fruit, and Bergamotte Esperen a later supply. But several more are required for a regular succession of fruit, and to secure these much may be done by planting single cordons 18 inches apart against a house or any outbuildings, then you will be able to indulge in such delicious fruit as Comte de Lamy, Doyenné du Comice, Marie Louise, Louise Bonne of Jersey, Dana's Hovey, Huyshe's Victoria, Glou Morceau, Seckle, Easter Beurré, and Winter Nelis.

Plums.—Rivers' Early Prolific is quite indispensable in every garden. Victoria comes later, and is a sure cropper; and Autumn Beauty affords a supply of late fruit. For dessert there are three kinds to be highly recommended—McLaughlin's Gage, Green Gage, and Reine Claude de Bavay, ripening in the order they are named, and all most delicious. If you can afford space for Coe's Golden Drop and Blue Impératrice do so, for they are invaluable for a late supply of delicious fruit.

Cherries.—May Duke, Kentish, and Morello are so useful that one of each should at least be planted.

Peaches.—If only one tree is required plant Grosse Mignonne—it will seldom fail. If more are wanted, then for earliness take Early Beatrice, which I find much better flavoured in the open air than under glass. Next to it Rivers' Early York, and for later fruit Barrington and Walburton Admirable.

Nectarines.—Balgowan is probably the best sort to name if only one is wanted. It is a little late, but ripens perfectly upon an open wall, makes a fine tree, and is very healthy and robust. For earliness take Advancer, which though small is of most delicious flavour, then the large and fine Lord Napier, followed by such excellent kinds as Pitmaston Orange, Downton, and Pine Apple.

Figs.—The best Fig for an open wall is Brown Turkey, a sure and abundant cropper. For large fruit of delicious sweetness take Brunswick, and for a rarity often fruiting well upon walls Grizzly Bourgasotte, but I am sorry to say it has failed me this year for the first time.

Of Raspberries there is none to surpass Prince of Wales for large and abundant fruit. Carter's Prolific is also very good. Red Currants—Knight's Large Red and Victoria. Black Currants—Lee's Prolific; and of Gooseberries Early Sulphur, Red Champagne, Pitmaston Green Gage, and Red Warrington.

I may add that no Grape is so suitable for an amateur as Black Hamburgh.—EDWARD LUCKHURST.

ROMAN HYACINTHS.

HYACINTHS of all kinds are much valued as winter and spring flowers, but none of them deserve to be more generally grown than the Roman Hyacinth. It is as fragrant as any of them, and comes into flower far earlier. In December it is most appreciated; the choice pure white fragrant flowers are then of the utmost use for floral decoration. One batch of them is never sufficient, but a quantity early in December, another at Christmas, and a third after the new year would not be too many. To have them in bloom at the earliest mentioned time the bulbs should be potted at once; in fact the whole of them may be potted now, and their time of blooming may be regulated by their introduction to heat. A compost of loam, half-decayed manure, and plenty of silver or river sand suits them well. The pots should be well drained, and only a little of the crown of the bulb should be visible above the soil when potting is finished. Sometimes we put single bulbs into 2-inch and 3-inch pots, and in other cases half a dozen or so are placed in a 6-inch pot. As soon as potting is finished the soil is watered if it is very dry, otherwise they are not watered, but plunged under coal ashes to the depth of 6 inches. Here they remain undisturbed for about a month, and then they are brought out to the light, when it will be found that young growths have pushed up from the crowns, and if placed in a temperature of 60° the leaves and spikes will soon develop. Those not wanted in bloom at the earliest date should be placed in a cold frame and introduced to heat as they may be required.—M. M.

THE ROSE ELECTION.

THE TEAS AND NOISETTES.

IN the general elections of previous years the Teas and Noisettes can scarcely be said to have come off very favourably. In last year's table, when no fewer than eighty-eight Roses were tabulated, only eleven Roses of this class obtained a place, and these held

the following positions, Nos. 8, 21, 32, 35, 39, 42, 43, 65, 72, 80, 84. I suppose that with most admirers of our national flower, if two Roses—a Hybrid Perpetual and a Tea—were equally good, the latter would carry away the votes. There is no gainsaying their exquisite beauty; they have a charm peculiarly their own, and they have one quality vastly in excess of their Hybrid Perpetual brethren—they, in sporting phrase, can stay. Who has not wished on the eve of an exhibition that some of his Perpetuals would retain their glories for the judge? Alas, how often have the hopes and wishes been blasted! and yet of Teas one might safely predict that the morrow will find the bloom in as great perfection as to-day. Now, too, that additional colours are being found amongst the newer varieties, and that it is gradually being established that they are not after all so very delicate, there is little doubt their admirers will increase.

Gradually various electors have stated their opinions, maintaining that it was unfair to these varieties to expect them to compete with the others, and urging that they should enjoy a separate election. This has now been accomplished, and I here give the result. Sixty-four electors have voted—thirty-nine amateurs and twenty-five nurserymen. The table contains first the position in the present election, the name, date of introduction, and raiser of the Rose, the amateur first ten and second ten votes, and the nurserymen's first and second-class votes.

RESULT OF THE POLLING.

No.	Name of Rose.	Age.	Raiser.	Amateurs' Votes.		Total.	Nurserymen's Votes.		Total.	Grand Total.
				1st Ten	2nd Ten		1st Ten	2nd Ten		
1	Catherine Mermet.....	1869	Guillot, fils	39	—	39	25	—	25	64
2	Maréchal Niel	1864	Pradel	36	3	39	25	—	25	64
3	Souvenir d'un Ami	1846	Belot Defougère ..	25	14	39	19	4	23	62
4	Marie Van Houtte	1871	Ducher.....	35	3	38	20	3	23	61
5	Souvenir d'Elise	1854	Marest	36	1	37	22	1	23	60
*6	Devoniensis	1838	Foster	22	12	34	18	6	24	60
	Climbing Devoniensis..	1858	Pavitt	2	—	2	—	—	—	—
7	Madame Lambard.....	1877	Lacharme	23	12	35	16	8	24	59
8	Niphetos	1844	Bougère	17	16	33	20	5	25	58
	Madame Bravy	1848	Guillot, père ..	12	8	20	5	6	11	31
*9	Alba Rosea.....	1862	Lartey	5	7	12	2	5	7	19
	Josephine Malton.....	—	—	2	—	2	1	—	1	3
	Madame de Sertot	—	Pernet	—	—	—	—	1	1	1
10	Jean Ducher	1874	Mad'me Ducher	20	14	34	7	11	18	52
11	Perle des Jardins	1875	Levet	15	17	32	11	7	18	50
12	Rubens	1859	Robert	11	20	31	3	16	19	50
	Belle Lyonnaise.....	1869	Levet	7	24	31	4	12	16	47
	Souvenir de Paul Neyron	1871	Levet	7	21	28	4	15	19	47
15	Comtesse de Nadaillac..	1871	Guillot, fils	14	14	28	7	8	15	43
16	Madame Willermoz	1845	Lacharme	7	18	25	12	6	18	43
17	Anna Ollivier.....	1872	Ducher	11	21	32	3	7	10	42
18	Innocente Pirola	1878	Mad'me Ducher	10	14	24	3	9	12	36
19	Caroline Kuster.....	1872	Pernet	3	17	20	1	9	10	30
20	Gloire de Dijon	1853	Jacotot.....	4	11	15	6	8	14	29
21	Mad. Hippolyte Jamain.	1869	Guillot, fils	4	11	15	—	10	10	25
*22	Adam	1833	Adam	—	9	9	1	7	8	17
	President	1860	A. Paul & Son ..	—	2	2	—	4	4	6
23	Bouquet d'Or	1872	Ducher.....	1	16	17	1	4	5	22
24	Madame Berard.....	1870	Levet	2	9	11	2	7	9	20
25	Madame Margottin	1866	Guillot, fils	1	11	12	—	8	8	20
26	Triomphe de Rennes ..	1857	Lansezeur	2	7	9	1	5	6	15
27	Celine Forestier.....	1858	Leroy	—	4	4	1	5	6	10
28	Jean Pernet	1867	Pernet	—	6	6	—	3	3	9
29	Amazon	1872	Ducher.....	1	5	6	—	2	2	8
30	Madame Falcot	—	—	—	4	4	—	4	4	8

* The asterisk denotes "too much alike."

Three other Roses had six votes, two others only five each, four were named four times, eight had three votes, seven two votes, and twenty-five received only a solitary mention. Altogether just seventy-nine were mentioned, counting the "too much alike" as single; but counting these in each case as a Rose, the number tabulated in the Tea portion of the National Rose Society's catalogue only amounts to fifty.

Possibly in this section my returns show more demurring to the Roses named as "too much alike." I quote from one of these as regards Madame Bravy and Alba Rosea:—"For instance, Alba Rosea is a thin-petalled papery Rose, beautiful in shape and colour; Madame Bravy is a thick-petalled waxy flower, less good in shape, much stronger in colour." I pass over the foliage, as the compilers have tested only the blooms. This gentleman is a close observer. But it may be asked, Do we not find on the same tree two blooms of some Roses, apparently distinct, influenced probably by some atmospheric condition?

In both the elections there is but one Rose whose certificate has invariably been endorsed A1—that Rose is Catherine Mermet. She is indeed most captivating, deserving her position.

In former elections many electors when naming Devoniensis have added in brackets "climbing," and my own ideas certainly were that it would distance its lesser counterpart, on the principle that if two things are equally good the quantity obtainable would decide in favour of one of them. To my surprise up to almost the last my own return was the only one favourable to the climber.

The electors are the same, with the exception that Messrs. Gall, Frettingham, and Proctor have not voted on the Teas; and Messrs. Cooling's list could with some little trouble be added, and therefore was included.

In the next issue I hope to compare the lists as arranged from the voting papers, with the opinion entertained by the great rosarian of America, Mr. Ellwanger.—JOSEPH HINTON, *Warminster*.

A NOTEWORTHY HARVEST FESTIVAL.

SEEING how wide-spread is the most commendable practice of holding harvest thanksgivings, it would be out of the question for the *Journal of Horticulture* to take more than a general notice of them; at the same time our old friend is read by great numbers who are either interested or take an active part in decorating the sacred buildings where these services are held. For this reason, I hold, especial mention should be accorded noteworthy examples of decorative art; and further, if some of those who frequently

give the readers of the *Journal* the benefit of their experiences would make seasonable suggestions as to what may be done in the way of decorating places of worship on special occasions they would, I feel certain, be widely appreciated. Each festival, such as Christmas, Easter, and Whitsuntide, and last but not least harvest thanksgivings, has its appropriate style, or at all events certain kinds of material for the purpose; and, if I might be allowed to suggest it, why not depute a competent writer to offer timely suggestions upon each? Mr. Luckhurst, in particular, is well qualified for the task, and it is certain his hints would be acted on by some, and probably supplemented by others.

It generally happens this class of decorations is a "labour of love" to those concerned, and in this case it is apt to be overdone—that is to say, they make their wreaths, festoons, and devices too neatly; in fact, spend too much time over them, thus spoiling the effect, owing to the churches more especially being large and heavy, requiring a heavier style. Or, again, if the structures be light and permanently and extensively adorned, by decorating too freely they hide or disfigure the admired features of the internal constructions. Both these extremes are offending to good taste.

At the grand old church of St. John's, Frome, however, the ladies and gentlemen interested contrive to create a most beautiful effect without marring the features of one of the most richly decorated churches in Great Britain. Freely were the requisite plants, flowers, and fruit provided, and freely yet most tastefully were these grouped and arranged, the whole with the splendid service in connection therewith being most vividly impressed on my memory. On each side of the altar were disposed beautifully flowered plants of *Begonia insignis*, these being fully 3 feet high and of proportionate circumference, and were particularly effective in the evening when the church was lighted. About the altar itself were disposed miniature sheaves of corn and magnificent bunches of Black Hamburgh Grapes, and more of the latter with a background of coloured Grape foliage were suspended to the ends of the choir stalls. Most beautiful was the low carved stone chancel screen. This was surmounted with neat well-flowered pot plants of *Begonia Weltoniensis* and *Knowsleyana*, on each side of the gates being pretty groups formed with a mixture of the plumes of Pampas Grass and flowering spikes of *Gladioli*. The screen was further festooned with Ferns, Dahlias, *Allamandas*, *Bougainvilleas*, and other flowers. The pot plants were surrounded with Apples, Tomatoes, Grapes, and crosses formed with corn were freely interspersed among the wreaths. At the base of the pillars on each side of the chancel were disposed handsome groups of fine-foliage and flowering plants.

The pulpit was tastefully decorated with black and white Grapes and other fruits and cut flowers in variety, and many plants, fruits, and vegetables were effectively grouped at its base. Nothing but white flowers, fruit, and Ferns were employed in the baptistry, and the effect was most chaste and pleasing. Floral

designs laid on moss surrounded the base of the font, while the pillars were festooned with Ivy and white Clematis, and the basin hung with Roses, single Dahlias, Anemones, Begonias, and other flowers, as well as choice fruits. The whole was surmounted with a cross formed with Grapes, Aucuba leaves, and a semi-double Dahlia which I do not remember having seen before. Groups formed of flowering and fine-foliage plants, fruit, and cut flowers were disposed in each window sill, and all the gas standards were wreathed and otherwise decorated. By daylight the general effect was good, but in the evening when lighted up it was most beautiful, and we could but heartily wish the clergy of every church or place of worship could command such ready help from the owners of gardens, and such a staff of willing workers as are to be found among the ladies and gentlemen of Frome. It ought to be mentioned the fruit and flowers are subsequently distributed among the sick poor.—SPECTATOR.

ALNWICK SEEDLING GRAPE AT CHISWICK.

A CONTRAST.

LAST year complaints were not infrequent that this comparatively new and undoubtedly good late Grape was a "bad setter." The fruit unquestionably failed to set in many instances, and unsatisfactory bunches containing a number of pea-like berries were too numerous; even where artificial fertilisation had been resorted to, but perhaps imperfectly performed, the bunches were not so full nor the berries so regular as is desirable. The impression, however, that such aid is requisite for securing a good crop of any Grape is an obstacle against its free cultivation, and with the object of testing the character of Alnwick Seedling as a "setter" it was determined, wisely under the circumstances, Chiswick being an experimental garden, to treat this Vine the same as others in the same house—the Black Hamburgh, Gros Colman, and Alicante—that is, not to have recourse to any artificial means for setting any of them. The result was that the last three named—and there is a great number of Vines of the two later sorts—set their fruit perfectly in every instance, all the bunches being full, and the berries well formed, large, and regular. But it was different with Alnwick Seedling. Of this there were, and are, three or four Vines of the same age and strength as the others planted at intervals along the house, and in every position the formation of the berries was most unsatisfactory, the bunches being practically worthless. This fact being recorded in the press at the time gave to the variety a rather bad character (which some persons, however, did not think it deserved), and without doubt was the means of limiting its culture.

While it was perfectly right and proper to record the Chiswick experience of last year, however unfavourable it was as affecting the value of any particular variety, it is equally fair, and only just, to record the condition of Alnwick Seedling in the same house this year. Last year the crop of it was the worst in the house, this year it is the best. Last year there was not one bunch of this Grape that was half furnished, this year every bunch is full and the berries regular, of good size, and well coloured. Of all the Vines of Gros Colman and Alicante in the same structure not one of either can be found bearing such excellent crops as are borne by each Vine of Alnwick Seedling. Last year there was not one bunch of this Grape in the house under notice that could have been placed on the table at a cottagers' show; this year there were no examples at even the late International Show at Edinburgh equal to those now hanging at Chiswick—not even those, and they were good, exhibited by Mr. Bell, who brought this Grape into notice, and obtained a first-class certificate for it from the Royal Horticultural Society.

The reason for the striking difference alluded to is that this year the bunches when in flower were fertilised with pollen from Alicante. This, then, appears to be the safe method for securing full and regular bunches.

So superior is the crop of Alnwick Seedling both as regards weight and quality over the others, that not only will additional rods be trained from the Vines that are doing so well, and so commence the extension system, but it is not unlikely that it will be increased by grafting. Even if artificial aid is needed for setting the berries, it will be time well spent and labour well invested if such a satisfactory return can be had as is produced this season.

The experience recorded suggests that if we should not hurriedly praise neither should we hastily condemn anything that is new, but await the teachings of experience under differing conditions. The failure of this Grape last year at Chiswick was so complete that not a few persons who pride themselves on their "quick judgment" would no doubt have cut it out. But the manager there has seen too much of what may be termed the vagaries of vegetation to act on the impulse of the moment. He has learned the

wisdom of watching and waiting, and, by cultivating the virtue of patience, has had a reward.

It would be interesting to know how this excellent Grape—an improved Alicante—has behaved in other places. It has no doubt been rather extensively planted, and many canes must have fruited this year. If they are like those at Chiswick their owners and cultivators will be satisfied, and the merits of Alnwick Seedling will be more firmly established.—J. WRIGHT.

POTTING PLANTS.

THIS is an operation which every beginner considers himself skilled in, but which is, nevertheless, often badly performed even by practical gardeners. The first point to be noticed is properly draining the pots. When a suitable outlet for the superfluous water is not made it is hopeless to expect success, for no plant can thrive in sour soil. In draining the smallest-sized pots one crock (piece of broken pot) over the hole in the bottom, with the concave side downwards, covered with the roughest of the soil, is generally enough. Indeed, a little rough soil in the case of strong-growing strong-rooting plants is often enough. For plants in 6-six pots one large crock covered with rough lumpy soil may be enough for Balsams, or even Fuchsias, when growing rapidly. For Heaths and plants of a similar nature small crocks carefully arranged to the depth of fully an inch should cover the central one, and over the small crocks a little moss, or the fibre from the peat or loam, is necessary to prevent the soil stopping the drainage. For a 12-inch pot from 3 to 4 inches depth of drainage will be necessary, and more according to size.

Having drained the pots, the next thing is placing in the soil. When the smallest pots are used for potting cuttings or seedlings enough soil should be placed in the pots, and pressed firmly down, that when the roots of the plant to be potted rest lightly on it the part of the stem which was at the surface of soil before may be fully a quarter of an inch below the rim of the pot. Holding the plant in this position, in the centre of the pot, with the left hand, soil should be placed into the pot with the right, and pressed down firmly and level, the surface of the soil being a quarter of an inch below the rim of the pot. This space is for holding water. When the plants are to be taken out of cutting boxes each should be lifted out carefully with a good ball of earth, and only as much being carefully removed without bruising the roots as will reduce the ball so that it may be easily introduced into the pot intended for it.

When plants are to be shifted the same rule should be observed. Plants do not need shifting unless the soil in the pots is well occupied with roots, and it is considered desirable or necessary to increase the size of the plants. When the plants are turned out of the pots the drainage should be removed, and any unoccupied soil carefully picked off. It should then be placed on the soil (which has been put in the pot and well firmed down previously), and fresh soil packed, either with the fingers or a blunt piece of wood, rather firmly. Loose soil holds too much water, and when plants which are potted loosely are turned out there is danger of the ball breaking, and so destroying the roots. When a plant is potted the new soil should always be put in as firm as the old ball is, or when the water is applied it will run through the loose soil and leave the firmer portion, where the roots are, too dry.

In potting large plants soil as full of fibre as possible should be chosen, and rammed into the pots or tubs rather firmly. The reason for choosing turfy material for soil is that it lasts a long time without becoming sour. When large quantities of soil, in which there is neither fibre nor roots, are packed into large pots or tubs, to remain there for years maybe, it is sure to become sour, soddened, and unhealthy, in which state no plant can grow well in it.

Repotting generally takes place in spring, when plants that have rested through the winter have been pruned and started into growth require partial shaking out and repotting in the same or similar pots. Fuchsias should be thus dealt with in spring, and so should any scarlet and other Pelargoniums which may have been brought over the winter, and which may be intended for growing on. Fancy Pelargoniums require this treatment in autumn, when they have made fresh growth after having been ripened and pruned. Plants which have thus been treated do not need larger pots until some growth has been made, but the partial removal of the impoverished soil and supplying fresh soil is always accompanied with good results. In such cases the old balls should be turned out of the pots and reduced as much as will allow of this being easily placed in the pots, and new soil along with them. Any loose roots should at the same time be cut back.

"Potting-off" is when plants in a small state are placed into pots for the first time. "Potting-on" is shifting plants into larger pots

than those they occupied; and "repotting" is turning plants out of their pots, reducing their balls, and placing them in the same or similar pots. When plants are potted enough room should be left in the pots as will hold as much water as will thoroughly saturate the soil contained in them. A quarter of an inch is enough to leave in a 3-inch pot, half an inch in a $4\frac{1}{2}$ -inch pot, 1 inch in a 6-inch pot, and 2 inches in a 10-inch pot, and so on.—N. B.

THE MANURIAL VALUE OF PHOSPHATE OF MAGNESIA.

IN my first letter on the manurial value of phosphate of magnesia (page 290) I said that the point mainly regarded by chemists in assigning values to different combinations of phosphoric acid was their solubility in water. With this quality their diffusibility through the soil is manifestly intimately connected, for on their diffusibility the activity of fertilisers ultimately depends. The solubility of a phosphatic material is largely promoted by fineness of division, and so also is the completeness with which it can be intermixed with the soil whilst it remains a powder, or distributed thoroughly through the soil afterwards when brought into solution. Generally speaking, therefore, in respect of manures, we may consider solubility and diffusibility as expressing the same quality in them; but this is not always true. If perfectly soluble acid phosphate of lime be added to a chalk soil the phosphoric acid undergoes immediate neutralisation, and is fixed in the mere upper crust of the ground. Diffusion is thus checked until this crust is saturated with phosphoric acid, when the process of diffusion may again go on and carry some of the phosphate a little deeper in the soil, and so forth. On the other hand, when the soil is a clay deficient in lime the perfectly soluble phosphate may sink below the reach of the roots of plants before it is physically fixed in the manner explained by Liebig to be necessary, as quoted in my last letter, page 341.

It is manifest, therefore, as it seems to me, that there must be a degree of solubility between that of the so-called insoluble phosphates and the perfectly soluble acid phosphate of lime, better calculated than either of these two extremes for diffusion through soils in general, and such a compound, I believe, we have, as I hinted in a former letter, in phosphate of magnesia. Voelcker ascertained (see table of solubilities, page 190), that a gallon of distilled water dissolved about 0.56 grain of a specimen of Cambridge coprolite, and that when 1 per cent. of sal ammoniac was added to the water 1.52 grains were dissolved per gallon. Of Suffolk coprolites, soluble to the extent of 0.56 grain per gallon, he found that when a per cent. of sal ammoniac was added to the water the solubility rose to 1.12 grains. Roughly speaking, therefore, we may say that the solubility of coprolites is more than doubled by the addition of the sal ammoniac; but Voelcker concluded that neither nitrate of soda nor common salt materially modified the solubility of phosphate of lime, a conclusion opposed to the general opinions of chemists as well as to that of Liebig. Jamieson states that the solubility of coprolites finely ground is in water, 1.13 grains; in nitrate of soda, 1.33 grains; in sulphate of ammonia, 1.46 grains; whilst Liebig found that in the case of water with one part of sulphate of ammonia in 540 parts by weight of water one gallon dissolved 4.4 grains of tribasic phosphate of lime; with one part of common salt in 500 of water one gallon dissolved 2.2 grains; and with one part of nitrate of soda in 333 of water one gallon dissolved 2.5 grains. It will be readily understood that owing to differences in the mechanical state of aggregation of the particles of phosphate of lime, and in the strength of the solution, identical results could not reasonably be expected even if the errors of manipulation which necessarily affect such determinations could be eliminated, but the following points may be considered to be satisfactorily proved.

1st, A very slight degree of solubility in water will enable a phosphate of lime to feed plants with phosphoric acid.

2nd, The slight degree of solubility possessed by phosphate of lime is considerably increased when sal ammoniac or sulphate of ammonia, even in very minute quantities, is added to distilled water. Carbonic acid solution produces similar results in the solubility of phosphatic materials. This point is so well understood that it will not be disputed. Phosphate of lime is also soluble, in no inconsiderable quantities, in liquids which contain in solution various organic non-acid substances, and when recently precipitated it is readily soluble in carbonic acid. A saturated solution of carbonic acid will dissolve fifty-two grains per gallon of bone phosphate, whereas distilled water will dissolve only 5.4 grains of it.—(*Lassaigne Ann. Ch. et Phys.* (3.) 25.348; and *Voelcker, "Solubility of Phosphatic Materials,"* p. 10.) I may here state that freshly precipitated phosphate of lime was found by Voelcker to be dissolved by distilled water in the proportion

of 5.66 grains per gallon; but when this had mixed with it a per cent. only of sal ammoniac the solubility was increased to 21.7 grains, or fourfold.

It is, therefore, evident that chemists ought to make some allowance for the increased value of phosphates when organic matter yielding carbonic acid on decomposition, or salts of ammonia, are mixed with the manure; but on the present system of valuation nothing whatever is allowed for organic matter, though formerly a different system prevailed, £1 per ton being allowed for it: this is little enough. No additional value is given for phosphoric acid when associated with ammoniacal salts, though its value is so much increased by their action. Voelcker says in this paper on the solubility of phosphatic materials, "The various conditions which affect the solubility of lime in water, therefore, have a direct practical bearing on the application of bone manures in agriculture;" has not Jamieson shown incontestably that this observation may be extended with truth to coprolites, if not to even less soluble mineral phosphates?—INQUIRER.

AMATEUR'S VINERY.

I WANT a small cheap house in which I can grow Grapes and also a few plants, some of them rather tall, such as Palms and Ferns, therefore the stage must not be made on the orthodox plan for having the plants "close to the glass." Can you throw out an idea that will help me in this matter? I think I have seen something of the kind in the Journal, but have been too negligent to preserve all the numbers. I am an attentive reader, nevertheless, and shall appreciate whatever assistance it is in your power and disposition to render in this matter.—J. P. BOUSFIELD.

[Mr. Luckhurst's "idea" may possibly be of service in this case; but he broaches it with the condemnation of "cheap houses, because they are not durable," and observes—"The accompanying

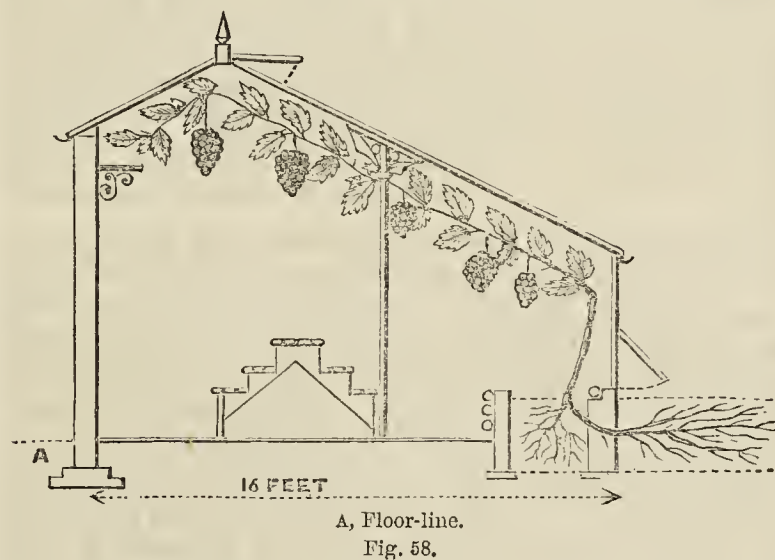


figure is a section of a light, strong, and durable vinery suitable for any garden, but peculiarly adapted to the requirements of an amateur by the arrangement of the interior. The roof is a fixture; air given as shown. Its dimensions are:—Height of back wall from floor, 9 feet 6 inches; apex of roof from floor line, 12 feet; height of the front wall from the bottom of the Vine border, 2 feet 8 inches; height of the glazed part of the front, 4 feet 6 inches; width, 16 feet; extreme height of stage, 3 feet; width of stage, 5 feet; the interior retaining wall is $4\frac{1}{2}$ inches, or a single brick in thickness. The iron pillars require to be placed about 10 feet apart, and an iron bar passing along under the roof from pillar to pillar imparts great strength to it. The whole surface of the floor should be paved or concreted and faced with Portland cement. The Vines should be planted in the narrow interior border, the roots passing through arches to the outside."

HARDY PERENNIALS FOR MASSING—A PLEA FOR A BETTER NOMENCLATURE.

THERE is no doubt that hardy perennials, or, as they are generally called, "herbaceous plants" (from the fact of some of them being herbaceous), are still slowly gaining favour. The singular beauty of some of them, their great adaptability for supplying cut flowers, and the amount of admiration lavished on them by people of taste when the plants happen to be placed in telling positions, is gradually forcing some persons who have hitherto tried to ignore them to now learn some of their long ugly names, and to cultivate a few of the more showy

varieties. Their names are certainly a great drawback, and as if one of such was not sufficient you can scarcely find a good plant without at least two or three names. It is, however, a comforting fact that aliases in the plant world are generally indications of merit, and convey altogether a different impression to aliases borne by men and women. But an alias or two is not the only drawback—we find totally different plants under the same name. In some cases, if you order the same from three different nurseries you will get three distinct sorts of plants, not one of which is the thing you want, and there is no recognised authority to tell us which is the right name or the right plant. Who will start a society for the purpose of making a collection of useful hardy plants with systematic classification, and an English as well as a botanical nomenclature, such as would be generally received? We do not want the collections of weeds we see in botanic gardens—these may or may not have their uses there (I am not sure about this part of the subject)—but we want collections of plants which are really decorative, and with names such as nurserymen would recognise when we give them an order.

As it is at present nurserymen are under a disadvantage, and private gardeners have demands on their time and resources which they can ill afford to comply with. A lady or gentleman sees a collection of plants in a private establishment; he or she if not a novice knows that the same plants are not to be obtained in a nursery under the same names, takes notes, and asks the proprietor to supply pieces of plants there and then. Of course a refusal is out of the question, and it frequently happens that when there is only one choice example of a new arrival it has to be divided, and perhaps spoiled, when it ought to be easy to procure the same plant at the nearest nursery for 9d. or a shilling if the nomenclature was trustworthy.

But I have slipped away from the part of the subject I intended to write about. Within the last three or four years I have used some of this class of plants for massing in formal beds in the flower garden, and I find they are very popular. The proper place for herbaceous plants generally is where they can have a background of shrubs, and where there is little or no formality in design; but the few plants I shall name are admissible in circles and ovals amongst the strictly geometrical designs, and as they pretty well take care of themselves their use is advisable on the score of economy, as well as for giving variety in colour and habit.

Rudbeckia speciosa (syn. *R. Newmanni*, syn. *Centrocarpha grandiflora*) is the best of all for this purpose. I have self circles of it on the grass, also circles on a groundwork of Purple King Verbena, and it is very effective both ways. The colour is bright yellow, with a black centre. It grows about 2 feet high, and has the habit of clothing itself with flowers quite down to the ground. It is very beautiful for cutting, and has been used in thousands for church decoration during the late harvest festivals.

Anemone Honorine Jobert (syn. *A. japonica alba*, syn. *A. vitifolia*) is the next best, and the pink variety, *A. japonica hybrida*, is very little inferior to it. The white one especially is useful for cutting. The larger the masses of these are the better they seem to look. I have self beds of each of them some 10 or 12 feet across. The older *A. japonica*, with dark red flowers, does not grow so well with me.

Lobelia syphilitica and its varieties make attractive small beds, but for the dark varieties with blue shades they must not be too large.

Of Michaelmas Daisies the best for this purpose is *Aster Amellus*, about 18 inches high, of a bright purplish-blue shade. This also must not exceed 5 feet in the mass.

Many other occupants of the herbaceous border are quite as beautiful as these in their present positions, but from their straggling or tall habit they are unsuited for formal beds.—WM. TAYLOR.

BEETLES INFESTING STRAWBERRIES.

RESEARCHES amongst a considerable number of books treating of horticulture or of insects fail to disclose any records in the past concerning attacks made by the ground or carnivorous beetles upon the fruit of the Strawberry. That such is the occasional habit of several species is sufficiently proved. "E. D.," a correspondent of this Journal, was the first to notify the fact, since confirmed by Mr. Cornhill and others. The species in the first instance published was *Harpalus ruficornis*; species in the genera *Pterostichus* and *Amara* also prove to be offenders, and very likely we shall find more species by-and-by. This discovery may be regarded as one result of the greatly increased cultivation of the Strawberry of late, possibly owing to the dexterous manner in which the beetles usually conceal themselves. Gardeners have

hitherto laid their damage to the slugs. Upon these it is certain several of these beetles prey, and upon a variety of insects, some of which are very harmful in gardens.

To the above tribe, at least occasional enemies, must be added the June bug (*Phyllopertha horticola*), as infesting the blossom of the Strawberry some seasons, and checking its development. Two of the *Otiorynchi* haunt the plant. The black Vine weevil (*O. sulcatus*) in its larval state is to be found at the roots as a whitish, frothless, hairy maggot from August to spring. The beetles come out in May. The red-legged weevil (*O. tenebrius*) sometimes visits Strawberries, but it is rather a promiscuous feeder, attacking the roots of Currants and Raspberries, and also various vegetables. A far better plan than killing the maggots is to prevent their appearance by hunting up the weevils ere they have deposited eggs.—J. R. S. C.

AMONGST THE REIGATE ROSES.

UNLIKE Canterbury, Reigate has long been famous for its Roses and Rose gardens; indeed it has in all branches of horticulture been especially favoured, while in Rose cultivation it has occupied a very foremost place. Go back as far as we may in the annals of Rose exhibitions, and we shall find that the Reigate growers have ever been victorious. The names of such growers as Messrs. Waterlow, Heywood, and Sargent are sure to be found in the winning lists, while of late years others have joined them in the friendly strife; and the worthy Vice-President of the National Rose Society, Mr. Baker, and Mr. Wollaston have come to the front, and they are all not merely Rose lovers but Rose growers, and one is pretty sure in going amongst them to get information on some points and useful advice on others.

GREAT DOODS.

I have been to these gardens at various times, notably at the period of their Rose Show, and have recorded my impressions of what I then saw. My last visit was paid the other day, and most enjoyable it was to go with my excellent friend Mr. Baker and talk with those who had watched over and successfully cultivated the Rose for so many years. Great Doods, the residence of Mr. A. J. Waterlow, is noticeable not only for its intrinsic beauty but for the thorough excellence of the gardening all round. The Roses are, however, the special favourites of Mr. Brown, Mr. Waterlow's excellent gardener, and are cultivated with great success, and under by no means favourable circumstances as far as soil is concerned, which is light and hot; but withal that we know what splendid flowers Mr. Brown is in the habit of staging, and those who have advocated the non-manuring of Roses would find it somewhat difficult to get on in the same manner. Roses were grown here on the seedling Briar, on their own roots, and on a stock which Mr. Brown very much values, the *Rosa Grevillea* or Seven Sisters. It is impossible to see finer plants than were here on all these various stocks, those on their own roots being especially fine, two-year-old plants having shoots from 6 to 8 feet high. It was nearly the same on the other stocks. By-the-by, Mr. Brown mentioned that in planting his stocks he laid the roots on the surface and then earthed them up almost as is done with Potatoes; and thus when he came in the following year to the budding he had merely to remove the earth round the collar and then insert the bud, while in ordinary cases the earth has to be almost dug out in order to get underneath the surface for the purpose. It very evidently saved the back of the operator, and as one gets on in life these little matters are of some consequence. That it answered its purpose there could be no doubt after seeing the splendid plants that Mr. Brown had under his charge. Some persons have been complaining of this as a Roseless autumn. It was not so here, and flowers that would not have disgraced a stand in July were to be seen in considerable numbers, although a large bouquet of splendid flowers had just been cut for the Lord Mayor Elect.

HOLMFELS.

Mr. Baker's garden at Holmfels—not at all in the country, but in the centre of Reigate—is known to many a rosarian through its genial owner and the excellence of the plants which he delights in. One would hardly imagine from its situation what an enjoyable garden there is in the rear. A beautiful lawn with beds of *Pelargoniums*, &c., stretches up to the rear of the house, and beyond this is the Rose garden, and it is quite evident that however orderly and well-arranged the whole garden is, it is the Rose which is the grand object of affection and care. If a new piece of ground is broken up you may be sure that it is for Roses. If a bed is altered it is that it may be made into a Rose bed. And here again let me say to those who think that it is of no use growing Roses unless you have a good Rose soil, that Mr. Baker's is naturally a very

bad one. The garden rests on a bed of gravel, and hence there is great danger of the plants suffering from drought in summer; therefore infinite pains have been taken to make the ground. It is trenched to the depth of 3 feet. At the bottom is placed a layer of clay, then a layer of loam, then a layer of dung, then another of loam, and so on until the bed is finished. It will be seen that this is an expensive proceeding, but it is surely better to go to such an expense at first than to have miserable starved plants and to be obliged to continually replace them. And this I will say, that although I have visited this autumn many Rose gardens in various parts of the country, I have nowhere seen one that I can quite put equal to Mr. Baker's. The plants are vigorous without being "pithy," and care has been taken to thin out all the small and useless wood, so as to allow full play for light and air through the plants. This insures the ripening of the wood—one of the most essential points for success in the following year—success either for a display of Roses in the garden or for exhibition. Mr. Baker is a strong advocate for very hard pruning, and most certainly his Roses do credit to his system of culture. He also mulches very fully with old manure, except in the case of newly planted Roses, when he covers the surface of the ground with the decomposed lawn mowings, which has a certain amount of nourishment, but not too stimulating for the plants.

WOODHATCH.

Mr. Heywood's garden at Woodhatch is another which has made its mark in the Rose world, and of all the places about Reigate that I have seen is the most beautifully situated. The view of Leith Hill and all the country round about is simply magnificent. The eye is never tired, especially on a fine day, when the effects of light and shade amongst the foliage near and far off are to be seen; and no part of our island is more beautifully wooded than this part of Surrey, the greater portion consisting of gentlemen's demesnes, where trees are ever appreciated—different from agricultural neighbourhoods, where trees are regarded as "cumberers of the ground" and hindering the growth of crops. The garden at Woodhatch is beautifully situated on rising ground, and here is to be seen horticulture successfully practised in all its branches. Nowhere, for example, have I seen such grand plants of Chrysanthemums as here, "feathered down to the toes;" and those from which the exhibition flowers are to be cut, some 6 and 7 feet high, with splendid foliage. But here, too, the Rose has the place of honour. A house is specially devoted to the culture of Tea Roses, which were in a thriving condition, while borders and beds of Hybrid Perpetuals in a most satisfactory state were to be seen in every position. Mr. Heywood's excellent gardener, Mr. Ridout, has a large number of budded plants in the kitchen garden, which is at some distance from the house, and here all the best varieties are budded in considerable number—thirty or forty of a sort—and doubtless from these some grand blooms are to be expected for the next season. Mr. Ridout is a strong advocate for the Briar cutting, of which Mr. B. R. Cant thinks so highly.

Looking through all these gardens one could not but be struck with the number of plants which, by their abundance of flowers, thoroughly justified their title of being "remontantes," or autumn-blooming Roses. Teas, of course, were in flower everywhere. Charming blooms of Marie Van Houtte, Madame Lambard, Innocente Pirola, Souvenir d'un Ami, and a host of others were full of flower, and splendid blooms were gathered every day. Amongst the lighter-coloured Hybrid Perpetuals in flower were Baronne de Rothschild, Duchesse de Vallombrosa, Egeria, Comtesse de Sercny, La France, Auguste Rigotard, Mabel Morrison, Marie Finger, Capitaine Christy, Marquise de Castellane, Madame Sophie Fropot, Duchesse de Morny; while amongst the brighter and dark-coloured flowers were Marie Baumann, Duke of Edinburgh, Charles Lefebvre, Marie Rady, A. K. Williams, Madame Victor Verdier, Duchess of Bedford, Dupuy Jamain, Général Jacqueminot, Charles Darwin, Etienne Levat, Madame Victor Verdier, Maurice Bernardin, Hippolyte Jamain, and Fisher Holmes; and, as far as my experience goes, these may be relied on as good autumn-blooming Roses. There are others which perhaps may be classed with them, while there are some which are hopelessly only summer-blooming. Only in this latter number I was some time ago inclined to include Madame Gabriel Luizet, but I am happy to say I maligned her; and Mr. Cant, than whom we have no better authority, says, "I hope when I can get strong cut-backs to find it much more free-flowering than at present."

Let me add that nowhere in the kingdom is there a more hearty and genial set of Rose-growers than at Reigate; nowhere is a real lover of the flower sure to receive kindness and hospitality; and nowhere are there a "straighter" set of exhibitors. The definition of "an amateur," which is now perplexing "committees," would be no difficult matter if all amateurs were like our friends here. There are other gardens here which I was not able to visit at this

time, such as Mr. Wollaston's; while from all I hear my excellent friend Mr. J. D. Pawle is likely to again enter the lists where he was once so successful a competitor. Altogether Rose-growing at Reigate is in a very flourishing condition, and I fully expect to see it coming to the front in the exhibitions of 1883.—D., *Deal*.



A MEETING of the General Committee of the NATIONAL ROSE SOCIETY was held at the Horticultural Club on Tuesday last, G. Baker, Esq., in the chair; at which it was determined that the Exhibitions for 1883 should be held at South Kensington on Tuesday, July 3rd, and at Sheffield on Thursday, July 12th. The idea of having a third show earlier than the other two at either Salisbury or Reading was also entertained.

— WE learn that the EXHIBITION OF CHRYSANTHEMUMS AT FINSBURY PARK will be opened on Saturday the 21st inst. Of course, at present only a few of the early flowers have expanded, but the show of buds and excellent condition of the plants augur well for a finer display than in the two previous years, beautiful as they were. About 1500 plants are grown, representing all the leading varieties.

— MR. G. GOLDSMITH, The Gardens, Hollenden, Tonbridge, writes that his collection of PEARS AT SOUTH KENSINGTON last week comprised sixty dishes of Pears, distinct varieties, no Apples being shown. As remarked in our report, the majority of these Pears were unusually fine for the season—large, handsome, and well ripened.

— MR. F. ORCHARD, late foreman at Warnham Court Gardens, Horsham, has been appointed gardener to E. Barker, Esq., Abington Hall, near Cambridge.

— RELATIVE to the competition for the CHALLENGE CUP AT THE KINGSTON CHRYSANTHEMUM SHOW, the conditions are that the three winners of the first challenge cup will not be allowed to compete for the second this year, but after this year they will be free to compete. This was not clearly stated in our note of last week.

— IN another column Mr. Shirley Hibberd appeals for support with the object of providing for an EXHIBITION OF PINKS, to be held in conjunction with the National Pelargonium Show next year. We readily publish this appeal, and shall be glad if it is responded to in such a manner as will enable the project to be carried out successfully. These chaste, sweet, hardy, and somewhat neglected flowers are at least as well worthy of encouragement as Zonal Pelargoniums.

— DAHLIA VIRIDIFLORA, shown by Mr. Cannell at South Kensington on October 10th, and which is by some considered to be a species, is only a variety, the same as any other double Dahlia, and was raised from seed in 1852 by the late Mr. John Salter of the Versailles Nursery, Hammersmith, so well known by his extensive cultivation of the Chrysanthemum; and it was then popularly called the Artichoke Dahlia, from the resemblance its green bracts gave the flower to the head of an Artichoke.

— WRITING on VEGETABLE MARROWS, a skilled gardener observes:—"They are among the first vegetables to be affected by the frost, and when once the leaves are cut down the fruit will cease growing. It may not be convenient to protect all the plants, but one or two of the most fruitful should be covered before frost has done harm. If it is desired to keep them on bearing for as

long a time as possible the marrows must be cut off before they are very old. To allow them to remain until they are full-sized and full of seed will prevent a constant succession. We grow two lots of plants—one to produce seed, the other to supply the kitchen. An open situation, close pinching, hard cutting, and good feeding throughout is the way to secure abundance of choice Vegetable Marrows."

— WE regret to learn that DR. THWAITES died at Kandy on September 11th, at the age of seventy-two. It will be remembered that he resigned the directorship of the botanic gardens at Peradeniya, Ceylon, some time since, being succeeded by Dr. Trimen, who now holds that post. Dr. Thwaites was specially noted for his studies amongst the lower Cryptogams, Fungi and Algæ having particularly engaged his attention when in England. He was appointed Director of the Ceylon gardens in 1849, which he ably conducted until a year or two ago. His chief work is an enumeration of flowering plants found in Ceylon, which is useful for reference.

— A CORRESPONDENT informs us that "DAHLIA GLARE OF THE GARDEN OR FIRE KING, is now very effective in Croxteth Hall Gardens. A large bed of the single forms is near it, but cannot be compared to the above for richness of colour or free flowering. The single variety Avalanche is also effective, and these two varieties cannot fail to become popular, and will undoubtedly in a short time be largely and generally grown where either a display or cut flowers are in request in late summer and early autumn."

— MANY of our readers will be pleased to hear, as we have pleasure in recording, that a graceful tribute of esteem was paid last week to the REV. H. B. BIRON (whose name is so familiar as a successful exhibitor of Roses) in the form of the presentation of a valuable purse of gold, with a book containing the names of the subscribers, on his retirement from the curacy of Harbledown to the rectory of Lympne.

— MR. CHARLES SMITH of Wiggington, Tamworth, writes that from 1 bushel of 56 lbs. of CARTER'S MAGNUM BONUM POTATO he has dug 23 bushels of 80 lbs.; and one large set planted alone produced fifty tubers, all of them sound—namely, thirty large for table, five medium for seed, and fifteen small. He considers the results good, but does not suppose they excel those of other cultivators.

— THE reputed only specimen of CYPRIPEDIUM RETICULATUM in cultivation is now flowering in Messrs. J. Veitch & Sons' nursery at Chelsea. It is not remarkable for its beauty, having greenish flowers, the sepal and petals of semi-transparent texture, showing a network of fine veins, from which its name is derived. The lower sepals are broad and fitted closely to the lip, giving somewhat the appearance of an additional pouch at the back of the lip. A beautiful new species of Ladies' Slipper named C. cardinale is also flowering. In form of flower it is suggestive of C. spectabile, and it resembles C. Sedeni in colour, the lip being a deep rose colour. It is said to be equally as free as the last-named, which is represented in this nursery by a number of plants flowering abundantly.

— "J. W.," writing on LADY HENNIKER APPLE, says he saw a sample the other day grown by Mr. Smith at Mentmore, and its large size, symmetrical appearance, and bright colour suggests that this variety is worthy of attention. Compared with others in a large collection there was not one so handsome, and if the tree is a good grower and bearer the variety should be included in most collections. Information on these points, our correspondent suggests, would be serviceable, and he would be glad to have the experience of Mr. Smith or others who may have fruited this variety.

— THE "Belgique Horticole" observes that Baron Nathaniel Rothschild's gardener at Vienna has succeeded in crossing SCHOMBURGKIA TIBICINIS with pollen from Lælia purpurata, and plants have been raised which are making good progress. What the result will be if a cross has really been effected it is not easy to imagine.

— "S." WRITES, "Although the Floral Committee of the Royal Horticultural Society displayed at the last meeting an unusual anxiety to certificate all the plants they possibly could, yet they passed one of the best shown there—namely, IMPATIENS SULTANI. Their remarkable liberality in other respects attracted much attention and caused some criticism, and perhaps they were under the impression that they adjudged this beautiful Balsam a first-class certificate when it was exhibited at a previous meeting, as many visitors thought would have been done. The award of a botanical certificate with which the Impatiens was doubtfully honoured conveys to the public the idea that the plant is worthless for decorative purposes, which is far from the case, as in its free growth, perpetual flowering, and easy culture Impatiens Sultani is unrivalled amongst its relatives."

— MESSRS. J. JEFFERIES & Co., Oxford, send us a selection of SINGLE DAHLIAS, including several very distinct and handsome varieties, which we learn have been raised by Mr. W. H. Baxter, curator of the Oxford Botanic Garden, who has paid great attention to these plants, and has succeeded in obtaining a beautiful strain. Especially notable is one named W. H. Baxter, a medium size of good form, the florets $1\frac{1}{4}$ inch broad, rounded, brilliant crimson in colour and yellow at the base, which thus forms a central ring, imparting a most distinct appearance to the blooms. Some of the others are similarly characterised by this peculiarity, one being deep purplish crimson and the other bright scarlet, each with a yellow zone. Of the self varieties the best were the following, unnamed:—Magenta crimson, with broad rounded florets; orange buff, very neat flower of a distinct, but popular tint; white, very clear and good flower; creamy white, flower small, but symmetrical and graceful; claret red; ruby shaded orange; and several good shades of yellow. The flowers were admirably packed in damp moss, but their shattered condition indicated the one great defect of the single varieties—namely, not bearing carriage well.

— A CORRESPONDENT writes:—"Some Latin NAMES OF PLANTS have a great similarity in sound to certain English words, though the meaning is quite different. These occasionally give rise to rather amusing blunders, and one of the best examples of what may be termed literal translation recently came under my notice. I was inspecting a collection of plants, among which was one invested with interest on account of its rarity, and bearing the specific name 'nodatum.' My attendant seemed at a loss to understand the meaning of this term, but ultimately came to the conclusion that the plant had been so named because the collector had lost the date when the plant was discovered. It is evident that my informant might advantageously pay a little attention to the rudiments of botanical nomenclature."

— THE GREENHOUSE at the Royal Gardens, Kew, is still as gay as could be wished at this time of year. Salvias, such as Bruanti, Bethelli, and patens, have been freely employed with excellent results, S. Bethelli being particularly good, plants in 8-inch pots bearing numerous fine heads of rich purple flowers. The brilliant scarlet S. Bruanti and the unequalled blue S. patens are similarly effective. Very notable amongst the climbers is a plant of Swainsonia Osbornii, an extremely beautiful species that is by no means so well known as it deserves to be. This specimen has now been in bloom some months, and is likely to continue for a considerable time yet. The flowers are of a fine, clear, bright

purplish blue, with a white blotch in the centre of the standard, and they are borne in close racemes, which are produced very freely from the axils of the graceful pinnate leaves. *Lapagerias rosea* and *alba* are progressing well, one pendulous growth of the last named having about twenty handsome flowers in a length of about 2 feet. The deep orange-coloured *Cestrum aurantiacum* is still covered with its abundant trusses of flowers. *Tacsonias exoniensis* and *Van-Volxemi*, with *Passiflora racemosa cærulea*, being all useful climbing plants, the merits of which are well known.

— MESSRS. SAMPSON LOW, MARSTON, & CO. are about to publish a cheap edition of the illustrated re-issue of "GILPIN'S FOREST SCENERY," edited, with notes bringing it up to date, by Mr. F. G. Heath, author of "Autumnal Leaves."

A WINTER DRESSING FOR VINES—EXTIRPATING MEALY BUG.

WHEN I took charge of the gardens here a year and nine months ago I found the Vines very badly infested with mealy bug—so bad that the clusters of bug which hung to the rods looked very much like tufts of cotton wool. The Grapes had all been cut, and every bunch I have been told had to be cleaned. The first thing I did was to prune the Vines, but we did not bark them, a practice which I think is unnatural and one that cannot be too strongly condemned. We, however, gave them a good scrubbing with water as hot as we could bear our hands in and soft-soap; then after they were dry we gave them a thorough painting with the following mixture, and for the two following seasons not a bug has been seen on the Vines, and we have had good crops of large and well-finished Grapes; and as the season for cleaning Grape Vines and other trees is close at hand perhaps the following receipt may be of use. To a gallon of water add 6 ozs. of nicotine soap, half a pound of sulphur, half a pound of tobacco, 1 oz. of nux vomica powder, with sufficient clay and cow manure to make it of the consistency of thick paint; apply with a soft brush.—W. C.

NORTHWARDS—THE EDINBURGH NURSERIES.

No one can remain long in the "Modern Athens" without being impressed with the great number of hotels provided for the accommodation of a fleeting public; and if inquiry is made on the subject the visitor will find that nurseries are also numerous. Some of these are of established fame, worthy of a visit, and hence of record. Of a few that were visited the following notes are descriptive:—

THE LYNEDOCH AND CRAIGLEITH NURSERIES.

These belong to the young and rising firm of Messrs. Ireland and Thomson, and are different in some respects from most of the other Edinburgh nurseries. Until they were established some eight years ago there was no nursery in the north in which primary attention was given to Orchids and new and choice stove and decorative plants generally; but by this firm they are raised and grown with the most satisfactory results. The admirable display of plants at the late International Show was a good indication of the quality of the general stock, and a visit to the nurseries proved that the plants at the Show were only fair samples of the general contents of the houses. The Royal Exotic Nursery, Lynedoch Place, is only about three minutes' walk from the west end of Prince's Street, and is chiefly devoted to glass structures, there being three ranges, or thirteen houses. Here we found fine collections of *Camellias* and *Azaleas* luxuriant in growth and bristling with flower buds. Tree Ferns were well represented in several of the houses, there being many large plants of *Cyathea Smithii*, *Dicksonia antarctica* with stems from 6 feet to 9 feet high, *Cyathea dealbata*, &c. Palms are also growing in large numbers here, and amongst these we noticed great quantities of fine *Kentias* of sorts, *Arecas*, *Seaforthias*, *Latanias*, and all others of merit as decorative plants. *Cocos Weddelliana* and *Geonoma gracilis* also deserve special note, as they were excellently represented. In other of the houses there were large batches of *Primulas*, and a general collection of stove and greenhouse Ferns were very conspicuous by their clean healthy condition.

Further on over Stockbridge, and in a beautiful and open part, we come to the Craigleith Nursery, and this is on a much more extensive scale in the way of glass houses and nursery ground. The latter is filled with healthy batches of the most useful and ornamental evergreens and shrubs of every description, herbaceous plants in great variety, fruit trees, Roses, and in short everything to be found in a well-appointed nursery. The glass houses consist of eight span-roofed structures each 50 feet long by 15 feet wide. The first house, given up to East Indian Orchids, contains a selection of all the best of these in cultivation. Well-established pieces of such lovely and valuable kinds as *Cymbidium eburneum*, *Cattleya Trianae*, *C. Dowiana*,

C. Warneri, *C. Mossiae*, and *C. gigas*, *Laelias*, *Phalænopsis*, *Dendrobiums*, *Cypripediums*, *Saccolabiums*, and all choice Orchids worth growing were to be found in quantity and in healthy and robust condition. *Calanthes*, which may well be included among the choicest of plants, filled a corner in the Orchid house, and their large pseudo-bulbs and fine foliage gave promise of a rich display of their favourite flowers. No. 2 house is devoted to cool Orchids, and was filled to overflowing with fine batches of *Odontoglossum Alexandræ*, *O. Pescatorei*, *O. triumphans*, *O. Rossii*, and the variety *majus*, with a quantity of *O. pulchellum majus* of the best variety. *Masdevallias* were in grand condition, such kinds as *M. Veitchii*, *M. Harryana*, *M. Chimæra*, *M. tovarensis*, and *M. trochilus* being grown in great quantities. *Lycaste Skinneri* is largely grown, and, like all the others, the plants of it are in fine condition. The old *Cypripedium insigne* was growing freely and blooming profusely, the largest of the plants having eighty blooms and buds on them. Many splendid young plants of the *Zygopetalums*, and some large and small potfuls of the charming little *Pliciones*, were doing remarkably well in the same cool atmosphere as the others.

In one of the plant stoves we found one of the finest collections of *Crotons* we have ever had the pleasure of seeing, their clean free growth, and, above all, their high colours, being most striking. The new *Croton Thomsonii*, certificated at Manchester last year, and previously noticed in these pages, was represented in grand form here; and also were other new varieties of value, including *C. Archibaldii*, Lord Chelmsford, and two new seedlings now being sent out by this firm. They are very long and narrow in the leaves, rich gold and crimson in colour, and most desirable for dinner-table decoration. Abundance of small and half-specimen plants of all the older varieties of *Crotons* are also kept in stock, and altogether form a remarkable collection. The same house also contains quantities of healthy *Dipladenias*, *Bougainvilleas*, *Stephanotis*, *Clerodendrons*, &c., and from the roof was suspended many Pitcher-plants, including *N. sanguinea*, *N. Mastersii*, *N. Henryana*, *N. Williamsii*, *N. robusta*, *N. Hookeri*, *N. Laurenceana*, and others. The smallest of them were carrying about twelve pitchers, and some of the largest had twenty-four. *Anthuriums* were doing well in the company of these, the new *A. Andreanum* being very plentiful, and the finest plant had eleven bright spathes. There were good batches of the new double-flowering *Bonvardias* in one of the houses, and hundreds of red and white *Lapagerias*, *Cyclamens*, and other winter-blooming plants. One house is entirely given up to the best kinds of greenhouse plants, and contains a choice and well-grown collection, a variety of choice Heaths being very prominent. Ferns are also grown in this nursery in large quantities. In the propagating house large quantities of new *Crotons*, *Dracænas*, and other choice plants were being rooted by the thousand. Young Vines in pots for planting out in borders and fruiting in the larger-sized pots were in a most satisfactory condition, the canes being very strong, the buds prominent, and all thoroughly ripened.

In this brief notice many good plants are necessarily omitted, but we would advise all interested who visit Edinburgh to go and see for themselves, when they will observe that cultivation is of an unusual high order here. The seed warehouse in Waterloo Place is under the superintendence of Mr. Ireland; Mr. Thomson, who is the only son of that widely esteemed gardener, Mr. David Thomson of Drumlanrig, looking after the nursery stock, ably assisted by Mr. Cole, a name known throughout the country in connection with high-class plant-growing.

MESSRS. METHVEN & SON'S NURSERIES.

Of these there are four, the principal one being in Leith Walk, the second at Warriston, the third at Inverleith, and the fourth at Gogar. There are few nurseries better known about Edinburgh than "Methven's in Leith Walk," as this nursery is entered from this popular thoroughfare, and the long walk which runs through the greater part of it in a straight line has a very imposing and inviting appearance. On each side there are many large beds filled with ornamental-leaved *Hollies*, *Rhododendrons*, and all kinds of hardy Conifers and shrubs, their condition all that could be desired, and the varieties choice and good. Amongst *Hollies* we were much impressed with the many fine samples of such valuable kinds as *Golden Queen*, *Shepherdii*, *Watereriana*, *myrtifolia*, and *Lawsoniana*. *Rhododendron ponticum* was remarkable for number, and other fine-flowering varieties of the Himalayan sorts appeared in a very luxuriant state. Many other bushes valuable as ornaments and useful for covert planting occupied much space, and every attention appeared to have been devoted to secure clean ground and compact robust growth. Here and there about the grounds there are brick walls very suitable for training juvenile fruit trees, and these were covered with healthy finely trained young Peach, Nectarine, Apricot, Plum, and other trees generally grown against walls. Judging from the growth of the generality of the trees in this nursery the soil must be unusually good, and no expense appears to be spared in keeping it in a highly productive state. The glass houses are more scattered here than in some of the other nurseries, but this does not interfere in any way with the condition of the inmates, as the many thousands of plants could not be in a higher state of cultivation. They consisted chiefly of *Azaleas*, *Camellias*, Heaths, and hosts of all other kinds of hard and softwooded plants of value for decorative purposes. The Vines in pots annually grown in this nursery have

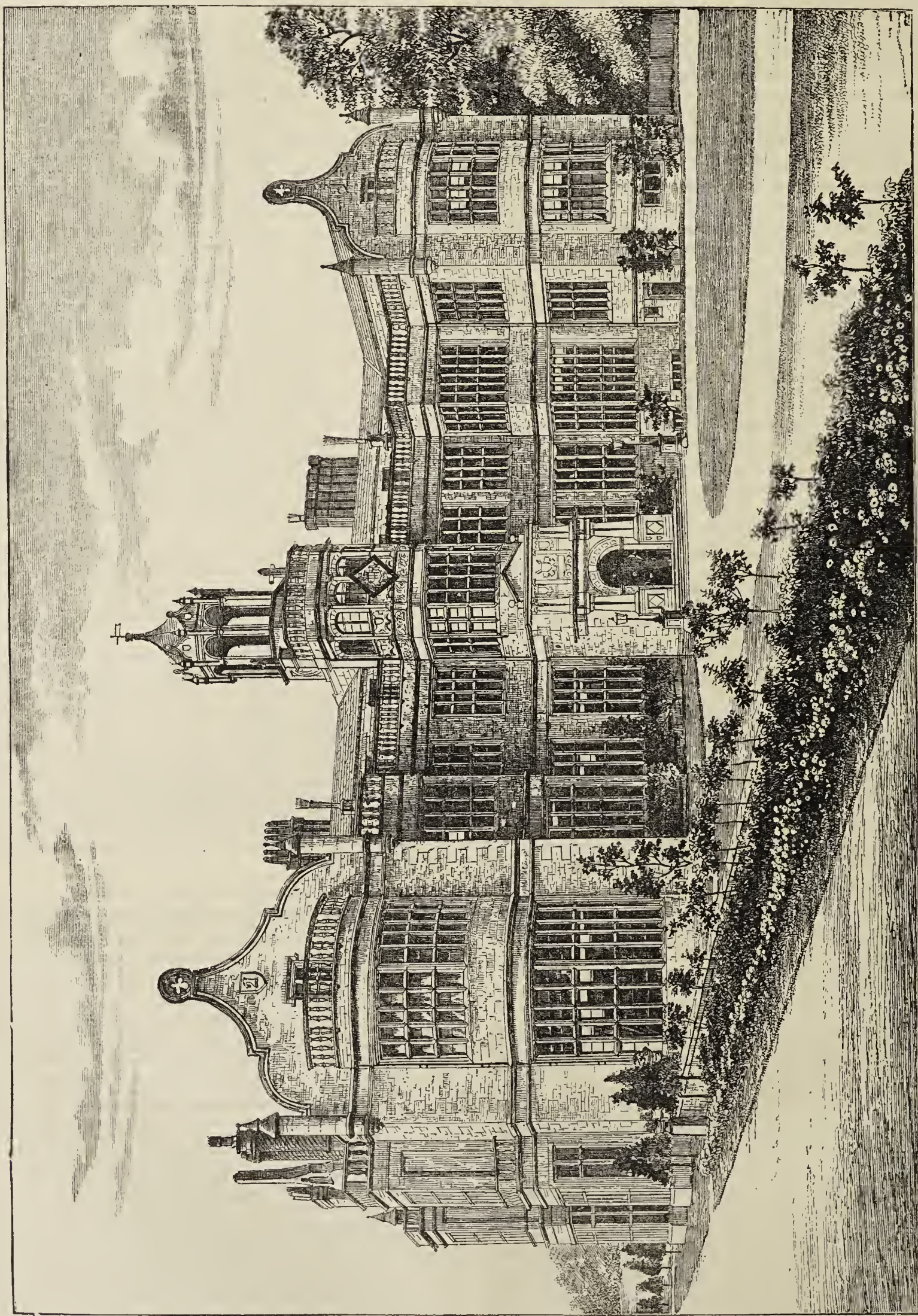


Fig. 59.—INGESTRE HALL.

gained a special reputation for their quality, and the stock this year will certainly not detract from this, as the numerous canes of all the leading kinds have been particularly well grown and ripened in a sunny position.

In the Warriston nursery, which has its main entrance near the Botanic Garden gate, there are several glass houses, chiefly filled with softwooded plants for supplying cut flowers. *Eucharis amazonica* is planted out in one of the houses on an extensive scale. The plants were in perfect health, and bloom profusely several times throughout the year. The common plan of resting through lowering the temperature and withholding water is practised here, but only to a moderate extent, which is evidently the right method to pursue. Pelargoniums of the Fancy and French kinds were well represented here, the plants being numerous and in fine condition. Tea Roses are largely grown for cutting, and so are Ferns, Carnations, Heliotropes, Chrysanthemums, &c., cut flowers being in great demand in Edinburgh about this time, and on throughout the winter. In this nursery are found the chief stocks of Coniferae, which are effectively grouped and well arranged to be seen to advantage by visitors. Varieties need not be named here, but it may be said that everything in this way worth growing is represented in excellent condition, while the many forest and other trees to be observed in the other nursery grounds of this firm proved how great the demand for them must be. On estates in England and Wales planting is being extensively conducted, and until Ireland commenced cutting her own throat there was a great outlet for forest trees there; but now, I was assured by more than one of the Edinburgh nurserymen, they leave it entirely out of their reckonings.

THE LAWSON NURSERIES.

These will be remembered by many of your readers in connection with the name of the late Mr. Charles Lawson, who brought them to a state of worldwide celebrity; but they are under a company now, and under the management of Mr. David Syme their reputation has been well sustained. Like all the other Edinburgh nurseries of any great extent, there are divisions in different parts of the city. Some might think this very inconvenient, but it is not so, as each is devoted to a particular branch. The Lawson Seed and Nursery Company have most of their plant houses in their Granton Road portion. The Bangholm ground contains the hardy ornamental trees and shrubs, and the Windlestrawlec is the forest and fruit tree nursery. To note all of interest in these vast and various departments would take more time and space than we can afford at this time, and only a few of the most prominent features can be pointed out. The glass houses in the Granton Road nursery number about two dozen, and are well constructed for the growth of all kinds of choice plants. Palms were very numerous, many of them being beautiful specimens. Crotons, *Dracaenas*, *Dipladenias*, *Begonias*, *Caladiums*, *Camellias*, *Azaleas*, and in short all kinds of plants to be found in gardens, were well represented; but there is so much to be seen in the open air that the houses were passed through hurriedly, the Coniferae, of which everybody has heard, being wonderfully attractive.

In the Bangholm nursery we were much interested with one specimen in particular. This was the original tree of that well-known and much-valued Conifer, *Cupressus Lawsoniana*. It is now about 24 feet high, and rather scraggy in outline, as well it may, as the stock which has been secured from this one tree must be enormous. However, it is in good health, and appears as if it would yet keep the propagator supplied for many years to come. But while this veteran will always command the attention of visitors, the admiration will be carried further to the great stock of all kinds of coniferous plants which are grown here. Trees of almost all sizes may be seen, but of course the bulk consists of plants from 1 to 4 feet high which have been transplanted frequently, and are being sent out from the nursery daily to the adornment of gardens. It is no use naming anything in particular here, as all kinds of vegetation which assumes the form of bush or tree are alike extensively and well grown.

THE WEST COATES AND PINKHILL NURSERIES.

These are the property of Messrs. Downie & Laird, and are widely known and noted for their valuable collection of plants generally, but more particularly the florist flower section. These are mostly grown at the Pinkhill Nursery, and include everything that is worth growing. Pansies, Violas, Phloxes, Carnations, Pentstemons, Dahlias, and all flowers of this kind of tried merit which have been raised by various firms and individuals are here; but prominence is given to this firm's own productions, and many of these are of the most valuable description, as the improvement of this class of flowers has long been made a speciality of here. The situation of this nursery is rather elevated, and at times may be too windy to be agreeable for the tallest-growing plants; but there was not much indication of this to be seen during September, as everything was in a most thriving condition, and the profusion of sturdy plants and the fine display of bloom on many proved at least that the soil must be excellent and the cultivators skilled. The place was in the best of order, and as many of the flowers were grown in large batches so as to fully represent each kind, the arrangement was most interesting and the display attractive.

Amongst Pansies and Violas which have been raised by this firm the following were noted as being of extra merit:—Flag of Truce, fine white; Yellow King, golden yellow; Perfection, yellow, deep purple belt; Tom White, yellow, bronze belt; Mrs. Melville, purple

maroon; Miss Milne, cream, purple belt; George Wood, crimson, very dark blotch; J. B. Downie, rich crimson laced with white; Lady Hay, very dark purple; Mrs. Crawley, rosy purple edged with white; Singularity, crimson, dark blotch; and Michael Scott, rose edged with white. These are mostly Pansies of the Fancy section, very extensively grown in the north, and worth growing everywhere. Phloxes, especially of the late-flowering section, were in splendid condition, the growth robust and spikes large. They are of nearly all colours and shades, and must rank amongst the most useful autumn-flowering plants grown. Hollyhocks, now so seldom seen in such fine condition as in bygone days, were growing luxuriantly here. Dahlias, especially the standard double-flowering kinds, were very fine indeed, and the small charming bouquet varieties were also most showy. As a cut flower for vase decoration they have much to recommend them, and there is certainly room for their extended cultivation. Pentstemons were far in advance of any we had previously seen, and Antirrhinums were effective in all the best named varieties. Besides the large quantities of flowers, trees and shrubs also form a large part of the stock in the nursery.

The West Coates Nursery is situated at the west end of Prince's Street, and is in a very commanding position. Here the finest glass house in any of the Edinburgh nurseries is to be found. It is called a winter garden, and well deserves the name, as it is a spacious structure where plants can be seen to much advantage, and there is ample space for visitors enjoying the treat thus afforded. Let one visit Edinburgh when they will, this house is always gay with flowers, and it must be a great boon to the Caledonians, especially in winter. Some of the plants are growing in beds, and many are in pots. Large Palms, Ferns, &c., give quite a tropical aspect to some parts of it, and it is altogether most enjoyable. Numerous other glass houses contain healthy stocks of all kinds of indoor plants. The nursery being practically in the town space is of the utmost value, and to economise it many of the glass structures have been erected on the top of the potting, packing, and other sheds. The ranges are extensive, and are entered by flights of steps at each end, the floors of the houses being of cement. By this method of house-top gardening a maximum amount of light and air is obtained. Instead of empty roof space we find here glass employed instead of tiles for covering, and thousands of plants of various kinds in the most satisfactory condition.

Other nurseries on a slightly smaller scale than the preceding may be visited about Edinburgh, and amongst these Messrs. Cunningham and Fraser, Comley Bank; Messrs. Gordon & Son, Coltbridge; and Mr. Peter Robertson, Trinity, will be found interesting on account of the variety and quality of their contents.

INGESTRE HALL.

THE destruction of an historical baronial residence always evokes interest, engenders feelings of regret beyond its locality, and incites sympathy towards those who have sustained so great a loss. The last calamity of this nature that has occurred is the burning, on the morning of the 12th inst., of the Hall in question. It will not be inappropriate to submit an engraving of the late structure at the present juncture, with the following particulars relative to the district and barony of Stafford and the surroundings of Ingestre Hall.

The Trent Valley is remarkable for the richness of its meadows, which in some places are barely elevated above the range of the floods, and therefore have very large breadths often submerged at the time when these prevail; in fact, the whole of the level land on both sides of the banks has no doubt arisen from an alluvial deposit, and it now forms some of the best land in the kingdom. The scenery, however, is neither bold nor varied, and the traveller in passing through it sees nothing near at hand to vary to any considerable extent the tameness of the prospect, as the rising ground on each side is too far off to be seen to advantage. But if he were able to examine the country more leisurely he would see that there is much to admire, and would learn that a well-directed industry has been at work in times past as well as at the present. When "Domesday Book" was compiled in the year 1081, this Staffordshire district was justly known as *Gestreon*, the Anglo-Saxon for production and riches. The district was granted by William the Conqueror to his follower Robert de Toëin, a relative of, if not himself, the Royal standard-bearer of that name. The King conferred upon him also the great barony of Stafford, and *Gestreon* was a part of its vast domains. Probably by marriage and without intermediate possessors it passed to the Mutton family, Eudo de Mutton being Lord of Ingestre, or Ingestren, as it was then called, in the reign of Henry II. Eudo gave lands in Ingestre to St. Thomas the Martyr Priory, then recently founded at Stafford, became one of its lay brothers, and left the remainder of his estates to his son, Sir Ralph de Mutton, whose daughter and sole heiress married to Sir Philip de Chetwynd. In the possession of their descendants it has ever since remained (the Earls of Shrewsbury).

Ingestre Hall stood on the right bank of the Trent, nearly in the centre of the county, a few miles from the county town of

Stafford, but nearer to the railway station Colwick. The ground slopes away from it on the east and north sides, while it rises to the south. On the western side is a large Italian garden, and to the south are the pleasure grounds, which rise gently until they blend in a wood. The kitchen garden is to the north of the offices, and in the same direction is the church of Ingestre, which had its origin as far back as the time when most dwellings of importance had their chapel. The mansion was in the Tudor style, a combination of brick and stone, the latter forming the window mullions and dressings, the other the body of the work. It was large and commodious throughout, and although ancient, both the stonework and brick had stood the test of time much better than many more recent buildings.

The fire, which so suddenly reduced this noble pile to ashes, is supposed to have been caused by overheating, and the loss, including many fine pictures and works of art, is irreparable. The gardens and excellent Grapes that are grown at Ingestre were described in our twenty-second volume.

FRUIT-JUDGING AT EDINBURGH.

I WOULD correct the false impression some of Mr. MacIndoe's words (p. 344) are likely to create on this subject with your permission. Mr. MacIndoe gives the names of eleven gentlemen who acted as judges as a guarantee of the justice of the awards complained of; and if the whole, or even the majority of those named, had been unanimous in their verdict in the cases under dispute nothing more could well be said on the matter, for it is hardly likely all could be mistaken. But was this the case? or were more than two or three responsible for the decision which created such marked dissent among the public at Edinburgh? Was it not the case that the work of judging was divided—two or three judges taking one class, and two or three another, and so on, and that hence the greater number of the eleven judges named had no more to do with the judging of the particular collections than any outsider? If this were so, then it would be impossible to accept the list of names given by Mr. MacIndoe as any guarantee. A more pertinent question is, Who judged the collections in question? How many judges were employed in the task? and were even the few who acted all agreed in the verdict? It may, perhaps, turn out the decision rested with an exceedingly narrow majority. At all events I do not suppose Mr. MacIndoe has any authority for assuming that *all* the judges he names were on his side.—UMPIRE.

MILDEW ON PEAS.

My experience is that Peas suffer from mildew from two causes—namely, drought and damp, but as yet I have been unable to decide satisfactorily to myself which is the most active. I find that Peas do well in showery or wet weather if there are intervals of sunshine or drying winds to dissipate the moisture; but in weather such as we have had here this last fortnight (close, dull, and damp, with rain and slight fogs) I find that my Peas suffer much from the mildew, which after a few days causes the under growth to decay, although the leading shoots yet appear clean and healthy. I am fearful, however, that the mildew attack will prove fatal to what were a fortnight ago very fine rows of Peas. I shall be thankful if any of your readers can suggest a remedy.—J. S., Ripley, Surrey.

I CAN endorse all that "J. S." says on page 348 relative to mildew on Peas. My Peas did remarkably well in the early part of the season while the showery weather lasted, but when those few weeks of dry weather came in July the rows were very soon covered with mildew, and continued so till the rain set in again. I have not seen any since, as it entirely disappeared, and I have been able to gather good dishes of Peas up to the present time. This morning (October 16th) I gathered a fine dish of Ne Plus Ultra. If the present weather continues they will be in bearing a fortnight or so longer, as there is not the least sign of mildew on them, and are as green as possible. I have only had three varieties of Peas worth much this season, and they were Laxton's Fillbasket, Hundredfold, and Ne Plus Ultra. If "J. S." would kindly give his opinion on the varieties he has grown during the past summer it would be of much interest.—S. W., Derby.

THIS disease, as alluded to by "J. S., *Darlington*," is not induced by wet. It is always more prevalent in dry seasons, especially in the autumn, when the weather is hot; it is therefore more destructive to late than early Peas. The name of the fungus belonging to this mildew is *Erysiphe Martii*, a close ally of the Hop mildew. No cure has been published for the Pea mildew, but as the fungus grows equally well on various wild Peas, on

Beans, on Melilot, on the St. John's Worts, and on Umbelliferous plants, it is difficult to deal with, for if the garden Peas were freed from the pest there would be considerable chance of re-infection from numerous wild Peas and other diseased weeds.—W. G. SMITH.

LIFTING PEACH TREES.

WHILE cordially welcoming the criticism by "A. B. C." (page 326) of my remarks upon this subject, I wish to point out to him that the old surface soil I disposed at the bottom of the holes, (see page 168) was not necessarily "spent" soil—quite the reverse. How can it be rightly termed "spent," when during the previous nine months it had received one liberal top-dressing of short stable manure and three soakings with liquid farmyard manure, all of which was absorbed by the surface soil principally. If this had been full of roots it would have altered the case, but in reality there were few or no roots or fibres near the surface. Consequently, instead of being "spent" soil it was most fertile, and I made a mistake in not using it more freely with the turf, which after all was poor and not so good for root-forming. We have ample drainage already for our borders, and the more we add the more rapidly will they become dry. A depth of 18 inches may be sufficient; but the border may be 3 feet in depth for aught that I care, as when once I have the roots near the surface I know how to keep them there.

For my part I fail to see the utility of annually lifting Peach trees. It is unnecessary, is besides to a certain extent risky, and is laborious and expensive. If we have a border full of fibre, would not a surface dressing given annually and a trench cut round at a good distance from the tree, the roots partially lifted and replaced in fresh soil, say once in three years, be sufficient to maintain the border in a fertile state? At any rate this is as much as the majority of Peach-growers are able to do for their trees, and who will say the results in most cases are less satisfactory than is the case where annual lifting is resorted to?

With regard to the employment of "brick ends" at the wrong place, according to "A. B. C." it may be they are of no service among the soil; but I am inclined to think they are, not because extra porosity is necessary in a Peach border, but because they are to a certain extent root or rather fibre-formers. Every rambling root that comes in contact with them is at once arrested, and naturally commences forming rootlets. It may be almost impossible to make the borders too firm or too heavy, but I have yet to learn that brick ends materially affect either the lightness or heaviness of the borders. What does "A. B. C." mean by "filling the borders with rubbish?" It he means mortar rubbish, I ask, Is there no virtue in it, and are so many of us wrong in using it in moderation? Perhaps "A. B. C." considers turf generally contains every soluble or insoluble substance requisite for the successful culture of Peaches. Clay added to some soils is doubtless of greater service than the different materials I have suggested might with advantage be employed, but here we have too much of it already, and prefer all additions to be baked—that is to say, in the shape of brick ends. After all, the art lies as much in knowing how to treat them according to their construction. If a border be retentive of moisture—for instance if it has received a good application of clay, and also otherwise enriched—then much less moisture will be required; but if formed of lighter and poorer materials will the difference in the crops secured be very marked providing the requisite amount of moisture and fertility be constantly within reach of the roots? I say not; in fact the best crop of Peaches and Nectarines I have seen this season was at Orsett Hall, and on trees that I planted, while there in charge, in a comparatively light border. What would "A. B. C." say to a Vine border composed exclusively of brick ends, mortar rubbish, bones, and charcoal? Yet I have recently seen such a border, in which the Vines look even better than where growing in an orthodox border in the next compartment.—W. IGGULDEN.

CORN MILDEW.

THE following excellent article extracted from the autumn seed corn catalogue of Messrs. Edward Webb & Sons, Wordsley, Stourbridge, will not be less acceptable to gardeners than those who are identified with agricultural pursuits:—

The destructive pest of cereals known under the name of Corn Mildew attacks not only Wheat (*Triticum vulgare*) but Barley (*Hordeum distichum*), Oats (*Avena fatua*), and numerous other Grasses, both wild and cultivated. The most serious attack of the malady is, however, always on the Wheat, and from the very earliest historic times we find written records of Wheat being destroyed by mildew.

A few centuries ago the true nature of the Wheat disease was unknown; some persons attributed it to the bitings of minute poisonous insects, others to some baneful influence carried by the wind. It was not till 1767 that the blight was proved to be caused by a mildew or parasitic fungus. In 1799 our English botanist, Sowerby, illustrated the Wheat Mildew in "English Fungi," plate 140. At the very time that Wheat blight was shown to be of fungus origin, English farmers were most stoutly asserting that Wheat blight was always more virulent in the neighbourhood of Barberry bushes.

Against the connection of the Barberry and Wheat fungi it was reasonably urged that Wheat Mildew was quite as destructive in New Zealand and Australia as in Europe, whilst in the first-mentioned places there are no native Barberries to cause the blight. Moreover, it was urged that Barberry bushes were so rare in this country in comparison with the commonness of Wheat and its mildew, that under any circumstances it would be utterly impossible for Barberry bushes to produce sufficient baneful influence to infect all the corn. It was now soon observed that Barberry leaves were afflicted with a yellowish fungus not unlike the early state of Corn mildew, but botanists asserted that the fungus of the Barberry and the fungus of the Wheat were totally different in structure and nature. Many of our best botanists have kept to this opinion till quite lately, and it is indeed possible many may still adhere to the opinion that the Barberry and Wheat fungi have no connection with each other. Sir Joseph Banks, President of the Royal Society in 1805, however, was the first botanist to point out the true nature of the ailment of corn, and in a paper on Wheat Mildew, published in the "Annals of



Fig. 60.—Fungus of Barberry.

Agriculture," vol. 43, he gave in his adhesion to the views of the farmers. Sir Joseph Banks, after an examination of the parasite and all the evidence on both sides, printed his conviction that the fungi of the two plants were possibly the same species, and that the Barberry blight was probably transferred to the corn. At length Professor De Bary gave some confirmation to Sir Joseph Banks' views by stating that he had caused Wheat Mildew to appear artificially from infection from the fungus of the Barberry; but as De Bary failed to infect the Barberry back again from the corn fungus, and as other botanists could proceed no further, if indeed so far, the question stood in abeyance. One set of men thought the evidence sufficient, and sided with the farmers and Sir Joseph Banks, whilst other men were unconvinced, and were always asking for further and better evidence. No better evidence was, however, forthcoming till Mr. C. B. Plowright, surgeon, of King's Lynn, last year made a series of experiments which were at first laid before the Woolhope Club at Hereford, and more recently, with many new experiments, published in the "Gardeners' Chronicle." Mr. Plowright states that he has really gone a step further than other botanists, and produced the Barberry blight from infected Wheat. Some botanists may indeed reply that the fungoid diseases of the Barberry are so extremely few that, if the plant has any ailment at all, it is pretty sure to be the one under discussion, and that the Barberry leaves experimented upon would possibly have had the disease if left alone, or if brought into contact with any other organic or non-organic material.

In the light of Mr. Plowright's recent careful experiments, we will take the views first advanced by Sir Joseph Banks as now proved, that the fungus of the Barberry really is one potent cause of Corn Mildew. We propose to illustrate the entire subject, and may at once say that all our illustrations are taken direct from Nature and engraved to scale.

For convenience we will begin with the Barberry (*Berberis vulgaris*), a plant which is probably well known to all our readers. A group of three of its leaves, armed with thorns at the base, is illustrated at A (fig. 60). The leaves at B, B show their under surface to the spectator, and on this under surface is seen growing the Barberry fungus (*Æcidium Berberidis*). It grows in yellowish patches, and when these patches are carefully observed or slightly magnified they will appear as companies of minute yellow cups. C represents the upper surface of a Barberry leaf, and on this upper surface there are frequent companies of extremely minute black dots, as illustrated. These companies of black dots on the upper surface frequently correspond in position with the yellow cups on the under surface; and although the latter were at one time supposed to be fungi perfectly distinct from those on the upper surface, they are now known to be the same, for they spring from the same spawn inside the leaf. This tuft of leaves with its fungi is natural size. If we magnify the cups on the under surface of the Barberry leaf with a glass magnifying twenty diameters we shall see them as yellow cups or inverted open-mouthed bells, as at D. A much higher power, however, is required to understand these fungus cups. So if we cut the Barberry leaf in two across a group of cups and magnify fifty diameters we shall see them as at E, F. E represents the outside of a cup, and we now perceive it to be filled with yellow dust, which flies out like beautiful rows of beads in necklace fashion. At F we have fortunately cut right through the middle of a cup, and we now not only see the internal mass of bead-like seeds, but we see that the cup itself is built up of a mass of similar minute circular bladders packed closely side by side so as to make an enclosing skin. Underneath this illustration at G are three of the little black specks (termed *Spermagonia* by botanists) peculiar to the top of the leaf. These specks are now seen in section. They are minute flasks embedded in the leaf. Their mouths are like exquisitely fine bundles of threads or rods, and carried on and round these rods are numerous atoms of the finest conceivable dust as illustrated. H, H shows the thickness of the Barberry leaf, also enlarged fifty diameters. The round bead-like bodies seen flying out of the cups are spores, seeds, or ovules. The extremely fine dust round the rods at G are probably of the nature of pollen, as their name (*spermata*) imports. If we now desire to thoroughly understand the nature of Corn Mildew we must learn all about the spores and *spermata*, and a much higher magnifying power becomes necessary. If we examine the seeds or spores with a power giving six hundred diameters we shall see them as golden spheres as at J (fig. 61), dotted round the circumference with the little transparent granules derived from the black flasks at G. When ripe the spores readily germinate, and the first sign of germination is six slight protuberances from the sphere, one at each pole and four round the equator. Sometimes a thread is protruded from all the six positions, but it commonly happens that one thread only is protruded. This thread winds in a convolute fashion as at K, and the whole contents of the spore or seed is poured into the end of the tube as at L. The life of the fungus upon the Barberry here ends. At first we have seen it as a capsule or bell full of seeds living at the expense of the Barberry leaf; we have then seen its seeds fertilised by the minute granules attached at J; and lastly observed their germination.

The older botanists considered that these germinating seeds or spores reproduced the *Æcidium* fungus on other Barberries, but the newer school maintains that the *Æcidium* spores are incapable of reproducing the *Æcidium* direct upon other Barberries. It is confessed that they will germinate upon Barberry leaves, as, indeed, they will upon almost anything in damp air, but it is asserted that they speedily perish, and are positively powerless to directly reproduce the *Æcidium*. The newer school also maintains that when these *Æcidium* spores are placed on the leaves and other parts of Wheat and various Grasses they germinate with extraordinary vigour, and produce the fungus of Corn Mildew. The evidence in this direction we will now examine.

A less high power of the microscope is again sufficient, and at M an extremely small piece of the skin taken from the under side of a leaf of Wheat is represented magnified two hundred diameters; at N, N, are two seeds from the Barberry fungus, both germinating and sending their growing points into the substance of the Wheat leaf through the organs of transpiration of the Wheat plant seen at O, O; the dotted lines at P, P, show the growing points of the

Barberry fungus within the Wheat leaf. The minute organs of transpiration are small orifices on the under side of the leaves, and it is through these open places that plants part from water in the form of vapour, and it is through these natural orifices that the seeds of the Barberry fungus enter and attack the Wheat.

Mr. Plowright states that he has infected Wheat with Wheat Mildew by contact with these spores from the Barberry, and that "control" plants not experimented upon remained free from the disease. It is not necessary for us to enumerate all his experiments, but the general result is, that in ten or twelve days after infection the infected Wheat plants sickened with Corn Mildew.

The question now arises, What is Corn Mildew? Its general aspect in the spring is known to every farmer; the leaves of his Wheat are at first covered more or less with pallid spots and streaks, and these spots and streaks a little later on become yellow and orange. This condition is represented natural size at Q, and the fungus bringing about this result is known to botanists as

of the yellowish powder will be seen as at S. The powder consists of innumerable oval fungus seeds or spores, each borne on a slight stalk. As the yellowish spores continue increasing in numbers they cause the ulcer to burst, and then the spores fly out of the fissure as illustrated.

As we now have fungus seeds or spores produced of a different form and nature from those which arose from the Barberry, let us

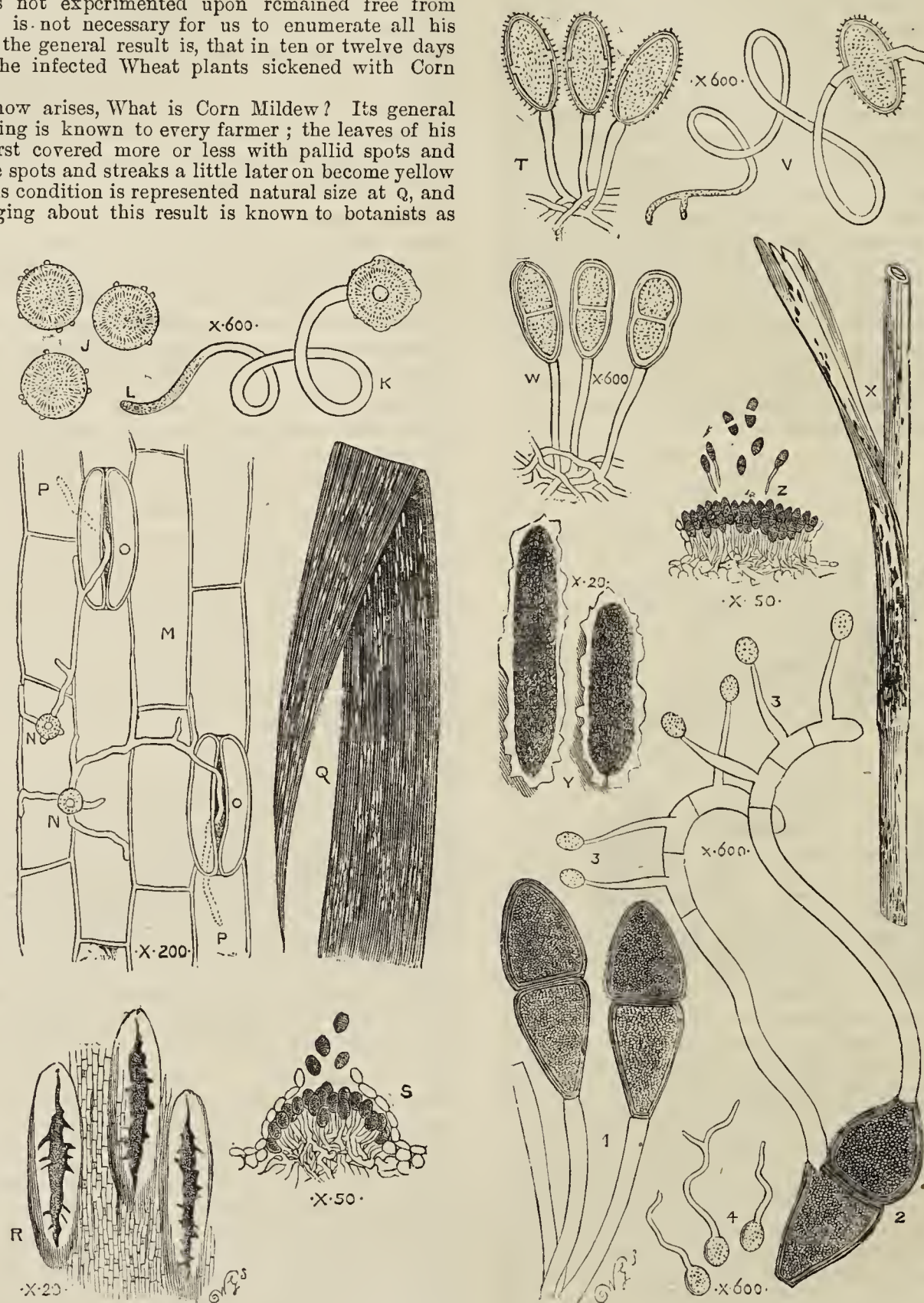


Fig. 61.—WHEAT MILDEW.

Uredo linearis. It is said to sometimes result from seeds blown from Barberry bushes, the evidence for which we have already discussed. If we magnify one of these disease pustules to the same scale as the cups on the Barberry leaf—viz., twenty diameters, we shall see them as at R, elongated swollen ulcers under the skin of the Wheat leaf; the skin is cracked longitudinally down the swollen pustule, and the interior of the ulcer is filled with yellowish powder. If a transverse section is cleverly made across a pustule and magnified fifty diameters—i.e., to the same scale as the more magnified cups of the Barberry leaf, the nature

enlarge them to the same scale and see how they conduct themselves on germination. A group of three of these seeds is seen at T, enlarged (like the spores from the Barberry) 600 diameters; like the Barberry spores they are yellowish in colour, but instead of being round they are oval, instead of being smooth they have a granular surface, and instead of being free or in necklace or chain fashion, they are now all supported on little footstalks as illustrated. When ripe, if these *Uredo* spores from Wheat are kept for a few hours in a damp atmosphere they germinate as at V, much in the same style as the spores from the Barberry; the

spawn threads or growing points emerge from both sides of these Uredo spores; the places from which the threads are destined to emerge may be seen in the three seeds to the left. One of the threads is, however, generally aborted, whilst the whole contents of the spore is poured into the growing thread of spawn. A point of great importance here arises:—If these Uredo spores from the Wheat are planted again upon other Wheat leaves they germinate, enter the organs of transpiration at once, and produce other Uredo spores in the Wheat: this process is so exactly like the germination of the *Æcidium* spores from the Barberry upon the Wheat that it is unnecessary to illustrate it; for if oval spores are substituted for the round ones at N, N, the germination of the spores and the entry of the spawn into the organs of transpiration is precisely the same in both. The following point is now to be specially noted. The Uredo spores of Wheat will not effectually grow upon, or enter the organs of transpiration of the Barberry.

Before leaving this part of the subject we must call attention to the fact that if the yellowish ulcers of the Wheat leaves are examined with the microscope later in the autumn we shall find a new series of spores or seeds, and instead of the spores being all oval as at T, a large number of them (and in some instances all) will be found divided into two by a partition, as at W. This partition, which divides the spores, really doubles their number, for each of these pieces at maturity is capable of germination. The partition now seen across the spores or seeds is of the greatest importance, for it is one of the chief links in the series of phenomena seen in Corn Mildew, and prepares the way for the next and most important stage of the disease.

If we examine mildewed corn at harvest time we shall see the straw spotted and streaked with minute jet black patches, as illustrated natural size at X. This is another condition of the original ailment; it extends to the parched and withered leaves and even to the ears; it is also to be seen in perfection in stacked corn and straw six or nine months after harvest. These black spots are looked upon as the most perfect state of the fungus of Corn Mildew, and known to botanists as *Puccinia graminis*. If these black ulcers are magnified twenty times, as we have magnified the previous pustules, they will be seen as at Y, bursting through the skin of the Wheat plant. The burst and frayed skin is seen in the illustration all round each black ulcer. The ulcer is full of black dust, and the nature of this ulcer and its dust will be seen if a transverse section is made as before and magnified fifty diameters as at Z. It will now be noticed that the seeds, instead of being yellowish and round or oval, they are larger in size, oval in outline, dark brown in colour, distinctly divided in two by a partition, and each seed is supported on a transparent stalk; these seeds fly out of the pustule when ripe, and may break in two as illustrated. Now when these seeds or spores are magnified to the same scale as the previous spores—viz., six hundred diameters, or 360,000 times superficial, they are seen as at 1. These seeds, although ripe in the autumn, will not germinate till the following spring; they are, therefore, resting spores destined to carry the fungus through the vicissitudes of winter. Too much moisture, too much dryness, or a slight amount of frost will destroy all ordinary fungus spores, but these autumn-produced spores are wrapped in thick coats, and the usual amount of drought, wet, and frost peculiar to Europe does them no injury whatever. In the spring of the following year they are ready for mischief, and they exist in uncountable millions on the old straw of stables, about pigstyes, dung heaps, and in all places where the previous year's straw is to be found. They germinate in April and May in the style illustrated at 2—both lobes of the compound seed throw out a transparent tube as illustrated—these tubes grow to a certain definite length, twist partly round like a shepherd's crook, three partitions form themselves in the crook end, the top three (sometimes four) pieces each protrude a slender tube, and each of these tubes carries a small yellowish seed or spore. The compound spores of two lobes have now by growth increased their power threefold, for there are now six spores instead of two, as at 3, 3. Unlike the brown compound resting spores of two divisions, these transparent little oval spores 3, 3, are ready to germinate at once as at 4; but will they blow on to the corn and reproduce the mildew? According to Mr. Plowright's observations they will not. If they are placed on young Wheat leaves they have no effect, but if they are put on Barberry leaves they germinate at once, their roots or spawn threads permeate the interior of the Barberry leaf in every direction, and speedily cause the production of the Barberry fungus (*Æcidium Berberidis*), described at the beginning of this article. The Barberry fungus soon gets ripe and produces myriads of seeds, these seeds are blown over the cornfields, and Wheat mildew is the result. All the phenomena we have described are once more

repeated, and so the fungus of Corn Mildew goes on from year to year.

NOTES ON PEACHES AND NECTARINES.

I WAS very much interested in Mr. Iggulden's article on varieties of Peaches and Nectarines, and wish to supplement two good varieties, especially as they are allied to two varieties he writes rather disparagingly of; and they are Rivers' Early York Peach and Albert Victor Nectarine. I know the old Early York very well, and I have the same opinion of it as Mr. Iggulden, but Rivers' Early York I think is all that can be desired for a Peach for the outside wall. Mr. Rivers correctly describes it as follows—"Medium size; skin marbled with red; flesh so melting and juicy as to dissolve in the mouth, leaving no fibre." Its flavour has a smack of the Stanwick Nectarine, and I will add the tree is very hardy and prolific, and fruit very highly coloured next to the sun.

Albert Victor I think is a Nectarine that should be grown by everyone if they only have an unheated house. It is a very heavy cropper, the fruit is of large size, the flavour delicious, and I find it much better if placed on a warm shelf two days before being used.

As most seasons are disastrous to Peach and Nectarine trees on outside walls, most people are recommending that they should be grown under Peach cases. But I think good results would be obtained if only the early varieties were planted and protected by tiffany at night whilst in bloom. I think the early varieties of Mr. Rivers and Hale's Early with the new American variety Alexander, if all that is said in its favour be true, might be so grown, as we must remember everyone has not Peach houses to grow this delicious fruit. I find Noblesse sets its fruit freely if assisted by pollen from Royal George.—A. YOUNG.

ALLOW me to say a word in favour of the Early York Peach. Mr. Iggulden at page 335 condemns it, and considers it should be struck out of the catalogues. Here it is grown in the early house with Hale's Early and Royal George Peaches and Rivers' Orange Nectarine, and never fails to carry a heavy crop of medium-sized, well-coloured, and good-flavoured fruit. As a proof of the latter quality, a dish of fruit was sent in May to a well-known nobleman, who described them as the best Peaches he had ever tasted.

Although a large-flowering variety it sets its fruit as freely as Royal George, and with us is not subject to mildew, and ripens about a week earlier. Hale's Early under the same treatment ripens fully ten days before Early York, the three varieties forming a good succession for the early house. Hale's Early I find does not open its flowers very freely when forced, but it does not fail to set a crop of large and well-coloured fruits. Prince of Orange Nectarine I am very pleased with. It also is a large-flowering variety, and sets its fruit very freely, is of good size, splendid in colour, and one of the best flavoured Nectarines.—G. S.

MR. IGGULDEN, in his notes under the above heading, page 335, says, "Small and colourless fruits are of comparatively little value, especially in the markets, and for this reason such varieties as Early Beatrice, Early Louise, Early Albert, and Early Alfred will never be grown extensively." I quite agree with the first part of Mr. Iggulden's statement, but cannot perceive why the two last-named varieties are included in the list given, because they are not colourless, and the last produces what might be termed large fruit. The fruit of Early Albert is not quite so large, but I have seen it a very deep crimson colour—in fact, nearly black, on the side fully exposed to the sun. Early Alfred also colours remarkably well when raised above the foliage. When well grown this is a rather beautiful Peach, the flavour being good.—L. D. W.

PROPOSED PINK SHOW IN 1883.

IF you do not utterly disapprove of my proposal I shall be pleased if you will permit me to appeal to readers of the Journal in behalf of an exhibition of Pinks, to be held next year in connection with the Pelargonium Society's Exhibition at South Kensington. I should long since have sought your aid in this matter, but I thought it best to wait for the programme of the Royal Horticultural Society, when having at command the date of the Show and other such necessary particulars. But the fixtures of the Royal Horticultural Society for 1883 are not yet announced, and I am fearful that if I delay any longer making a formal declaration I may prove to be too late, whereas for the sake of the cause I would prefer to be too early.

It is proposed, therefore, that we hold a show of Pinks in the later days of the month of June next year, and that a committee be formed to draw up the schedule and regulations, and that the friends of the movement communicate at once with the undersigned. A subscription of 5s. from every lover of Pinks will provide funds enough, for in truth we do not need a heavy purse, but money we must have. I now send round the hat, engaging to nominate the committee forthwith, and to announce the date of the show instantly upon obtaining from Major Mason an official reply to requests I have made anticipatory of this appeal.

To pronounce a panegyric on the Pink is not needful, and I would not burden your well-filled columns with a word more than I think I may fairly ask room for in the interest of a flower that has a name and a fame, but has for some time past shivered in the shade of cold neglect. All I wish to do is to give the Pink a new start by an exhibition in London. That accomplished, I shall gladly hand over the affair to better men, and hope to see the Pink show established as a respectable institution.

Lovers of Pinks, my hat is before you. Put in your crowns, and if things do not fit I will return the money. We must begin somewhere and somehow, and I propose that we form a society for the special purpose of producing one exhibition. As regards the farther future, we will leave that for the present to take care of itself.—SHIRLEY HIBBERD, 15, Brownswood Park, London, N.

VINES AT LONGFORD CASTLE.

To those who take more than an ordinary interest in Grapes and their culture it is at all times a pleasure to see Vines in a healthy and flourishing condition, no matter whether they are young or old, growing or at rest; for even if they are at rest, or, to speak more correctly, when they are not in active growth, it is not by any means difficult for the practical man to see what they have been doing, or to foretell with a certain degree of accuracy what they are likely to do in the future, supposing, of course, that all goes well. In a recent visit to the gardens at Longford Castle, Salisbury, I was highly gratified to find the most vigorous and promising young Vines of their age it has ever been my good fortune to see, and certainly such as we might almost with certainty venture to predict will at some future day render a good account of themselves. Indeed half of them, which are planted out as supernumeraries, are doing so now, each one carrying about four bunches and averaging something like 3 lbs. each, and this, too, when they were only put in as eyes eighteen months ago, and even now are not being cropped at their full capacity, it being intended to take another crop from the upper half of the rods next year. The Vines are planted in inside borders at a distance of 2 feet from each other. The permanent rods will be allowed to bear their first crop next year; and so strong is the wood—as thick as a stout walking stick, with leaves of that leathery texture and dark healthy green which is indicative of the best of health—that many gardeners would not have scrupled to have cropped them this year. This, however, if it had been done would doubtless have been a mistake, as many Vines are crippled for life through being overcropped in a young state. The range, which is a three-quarter span and with three or four divisions, is planted with all the leading varieties—Muscat of Alexandria, Mrs. Pince, Madresfield Court, Lady Downe's, Abercainey Seedling, Trebbiano, Gros Colman, Gros Maroc, Alicante, Black Hamburgh, &c. The berries of Gros Colman we noticed as being particularly fine, some of them measuring 4 inches in circumference, the largest I ever remember to have seen. Mrs. Pince and Lady Downe's were also conspicuous by their good colour and finish. Although the Vines are now growing in inside borders they are destined eventually to occupy an outside one about 14 feet in width, the front wall being built on arches for the said purpose. The soil in which they are planted is a strong yellowish loam, and contains a small percentage of iron, which is necessary to the well-doing of Vines—and has nothing incorporated besides animal manure, bones being excluded altogether, as Mr. Ward does not consider them absolutely necessary to produce good Grapes, and certainly the present state of the Vines would warrant anyone else in coming to the same conclusion.

For a few years past Mr. Ward has had an uphill task battling with the phylloxera, and almost all known remedies have been tried to exterminate it; but nothing short of what is generally known as the "stamping-out process" was successful, and that success has been attained one cannot for a moment have the slightest doubts. The almost continuous anxiety of mind resulting to the enthusiast from a visitation of this dreadful pest may be more easily imagined than described. Wherever it does appear, however, the best advice that can be given is to remove the Vines and destroy them without a moment's delay, clear away every

particle of soil, and thoroughly disinfect every inch of surface where the old soil has been taken from. Plant again Vines which can be warranted to be free from the insect, or put in eyes of the varieties required, and as soon as rooted and they have made a fair start in growth plant them out. Nothing short of this, so far as practical men are aware, has hitherto proved successful.—JNO. HORSEFIELD.

NOTES ON WASPS.

AS "DUCKWING" has given us his year's experience, which differs very considerably from mine, I must reluctantly trouble your readers with a few lines on a subject which by this time I imagine everyone must be tired; and, therefore, I will endeavour to condense into small compass, having kept my "eyes open" a little wider than usual in anticipation.

Queen wasps were unusually abundant in the spring, I may even say winter, for on January 19th last the first was seen and remarked upon by me. As the season advanced the cry became general; and, as I have before mentioned, I killed all I could, amounting to over one hundred round my own garden. Two nests were commenced in my arbour within a few feet, and notwithstanding my attention and energetic pursuit and destruction of queens many escaped, and with the result that I never was troubled with so many ordinary wasps as this autumn, in spite of all the wet weather during July and August. I have destroyed ten nests within a short distance, the wasps from which were constant visitors to my fruit and bees, as by careful watching (the wasps being fed on a little honey and water for the purpose) I traced out each nest. Some of the nests were very strong, and others the opposite. Several of the nests I have exhibited at our Amateur Gardeners' Society from the first about as large as a thimble, with one very small comb and the single queen, and others in different stages of development up till the present time, with the combs all cleared out and the queens ready to separate and seek out their winter's quarters.

One "byke" was exhibited just as it was taken from the earth with wasps intact, not as Tom Edwards' was—"in his shirt," but securely wrapt in a newspaper.

In my walks during the past summer I have never noticed so many nests in any season as the present. I counted twenty-three within a mile, and round one old marl pit four within 20 yards.

In one nest I could find no male wasps, although there were about fifty queens. Whether these would be fertile or barren queens I cannot say, but I have saved several alive if there is any means of ascertaining the fact either now or by keeping them through the winter, when I imagine their egg-laying capacity would be fuller developed. I have trespassed, I find, further than I intended, but must just say that I have not seen a hornet this season.—J. HIAM, Worcestershire.



KITCHEN GARDEN.

PLANT out, if not already done, the principal crop of Cabbage for early summer use, hoeing frequently about those for early spring use, drawing a little soil to them to keep them steady and prevent damage by winds. Dust occasionally with quicklime if slugs are troublesome.

Complete the planting-out of Lettuces and Endive for spring use, and see to the requirements of those previously planted as regards keeping them free from weeds, and applying lime, soot, or wood ashes as preventive of the attacks of slugs, worms in some instances being also extremely troublesome.

Run the hoe between the rows of winter Spinach, and thin the plants well to allow of large leaves being formed, and prevent damping off by well exposing the plants. Only the large leaves of this esteemed vegetable should be gathered at this season, as cutting too much enfeebles the plants and interferes with the continuity of the supply. Winter Onions should be kept free from weeds, and if too thick in the rows thin moderately. Cauliflowers will now require attention to protect the heads in case of sudden frosts; a few leaves broken down over the heads will be sufficient for the present, and will also keep them clean and white.

Measures being taken at the proper time to secure a supply of Lettuces and Endive ready at this season for lifting, it should not longer be delayed, as the quality of these is much deteriorated if injured by frost. In cold pits or frames with protection during severe weather, and ordinary attention to ventilation, these will keep in good condition for a considerable time.

Celery, a very important edible for winter use, must be given the requisite attention in earthing and protecting in case of frost; for when left too much exposed it sustains serious injury, decay being attributed to wet when it really is a consequence of previous damage from frost.

Roots of Carrots, Salsafy, Scorzonera, and a portion of the Parsnips should now be taken up and stored for winter use, being careful not to trim them too hard or to place in large stacks so as to induce fermentation, which causes decay. They should be packed in damp sand. Beet must be lifted and carefully trimmed, so as to avoid damage, or the colour will be impaired. In order to keep this root late a portion should be placed on a north border, the roots entirely buried and covered with a few inches depth of ashes, where the roots generally keep fresh and firm until next year's supply is fit for use.

Frame Ground.—Whilst favourable weather continues fully expose Cauliflowers, Lettuces, Endive, and Radishes in frames, being very watchful against the early frosts, as these are the most injurious. Remove decayed leaves and weeds, and stir the soil occasionally between the plants, dusting with lime to keep down slugs and worms.

Pits or houses that contain late crops of French Beans will require constant attention to prevent the plants damping, keeping the temperature from 60° to 65° at night, and 70° to 75° by day, with a little ventilation constantly. Successional sowings may be made in 9-inch pots, using moderately rich light soil. Periodical sowings of Mustard and Cress must also be made in heat according to the requirements.

FRUIT HOUSES.

Vines.—Where late Grapes are grown in sufficient quantity to continue the supply until late in spring Grapes may be had all the year round without the necessity for very early forcing. Lady Downe's is unquestionably the most valuable, it being a sure cropper and keeping in good condition until the end of May. Alicantes invariably finish well, and keep excellently. West's St. Peter's is a fine late sort, and keeps under favourable conditions in good order until April. Gros Colman is simply grand in appearance, its enormous berries and magnificent colour when well-finished being very telling. To ripen and colour this and Gros Guillaume requires more time than other late Grapes, and should as a consequence be started early, and encouraged from first to last with fire heat. Trebbiano and Calabrian Raisin are the best of the whites, large both in bunch and berry, and when well ripened good keepers and of fair quality. The last four are generally considered of second-rate quality, but this arises entirely from the fruit not being properly matured, and from their being contrasted with Muscat of Alexandria and Hamburgs at a time when their best qualities are undeveloped, which is effected by that which gives them their value—viz., late or long keeping.

Where late Grapes are not grown, dependance being placed on Hamburgs and Muscats for a late supply, which cannot under the most careful management be prolonged much beyond the new year, or new Grapes being required by the middle of April, no time must be lost in starting the Vines that have been pruned and dressed both at top and roots as advised in former calendars. If the roots have access to outside borders those should be covered with fermenting materials, three parts leaves—Oak or Beech—to one of stable litter well mixed being most suitable, from giving a mild and lasting heat. The inside border should be rendered thoroughly moist by supplying water or liquid manure at 80° to 90°, and fermenting materials of the description indicated in preparation for placing inside the house at the beginning of next month, alike as a means of warmth and to promote a good break of the Vines from the moist genial condition of the atmosphere occasioned by the presence of the fermenting materials. The house may now be closed, but no artificial heat should be applied for another fortnight, when the night temperature

should range from 50° to 55°, and 65° in the daytime from sun heat, syringing the rods twice daily.

Young Vines that have completed their growth should have a portion of the laterals removed to give light and air to the wood and induce earlier ripening of the wood, keeping rather dry at the roots; but an over-dry condition at the roots must be guarded against. Keep a sharp look-out for decayed berries in ripe fruit, ventilating freely in favourable weather, it being advisable to maintain slight warmth in the pipes when the atmosphere outside is charged with moisture.

Cucumbers.—Place the plants for winter fruiting out at once, planting on raised hillocks or ridges near to the glass, encouraging growth by a genial condition of the atmosphere. Examine the autumn fruited, removing bad leaves, thinning out exhausted and too crowded growth, removing all male blossoms. Maintain a night temperature of 65° to 70°, and 70° to 75° in the day, advancing with sun heat to 80° or 85°, admitting a little air at every favourable opportunity. The evaporation troughs should be kept charged with liquid manure. Employ the syringe over the foliage lightly on fine afternoons, and damp the floors about 8 A.M. and 3 P.M., reducing the supply of water at the roots, but do not allow the foliage to flag. Dust with flowers of sulphur against mildew, and fumigate carefully upon the first appearance of aphides. Keep the glass thoroughly clean to admit all the light possible.

PLANT HOUSES.

Azaleas.—Plants of the neglected *A. vittata* which have been encouraged by gentle warmth to make growth and set the buds early will now be in flower, and to enable them to open freely and enhance the size of the flowers a temperature of 50° to 55° will be more suitable than an ordinary greenhouse temperature. Plants of this that have been subjected to ordinary treatment will also shortly begin to open its flowers, and should, for the reasons indicated above, be given a slight increase of warmth. The plants will flower over a long period, as a second lot of flowers will be produced by the strong shoots providing the wood is not cut with the first blooms. The flowers of this are variously coloured, a few being entirely purple, others white-striped, and others blotched. Some of the earliest-flowered plants, and since encouraged to make growth and set their buds early, will now be in condition to place in heat, they coming on without much excitement, which will add to the durability of the flowers. Alba, amœna, A. Borsig, Fielder's White, Narcissiflora, and Raphael flower early without much excitement. Others which have been accelerated in growth and setting will also force readily. Some of the best are Jean Vervaene, Apollon, Eclatante, Roi d'Holland, and Reine des Roses, which have single flowers. In semi or double flowers Mdle. Louise de Kerchove, Kaiser Wilhelm, Dr. Moore, Triomphe de Wondelghem, Roi des Belges, and Madame Charles Van Eckhaute. The whole of the stock should be examined, and if there be any trace of thrips the plants must be washed with tobacco water, wetting the whole surface of the leaves and wood.

Chrysanthemums must be encouraged as much as possible whilst outdoors, keeping them well supplied with liquid manure, attended to in tying, using no more support than is absolutely necessary, and thinning the buds well in good time, so as to secure fine blooms. Whilst it is undesirable to house the plants too early, protection should be at hand to apply promptly in case of sudden frost, and when the buds begin to show colour the sooner they are housed the better, ventilating freely, and merely excluding frost.

Schizostylis coccinea grown in pots and liberally treated during summer will be throwing up its spikes, and should be moved to a cool house or conservatory, where it will make a fine display for several weeks. It is a moisture-loving plant, and well repays any extra attention in the application of liquid manure.

Tea-scented Roses grown in pots and not forced, but grown outdoors in summer, will be showing buds plentifully, and if moved to a house with a temperature of 50° will continue expanding them until a late period, liquid manure being given at the roots. Niphetos in an ordinary greenhouse keeps on growing and flowering throughout the year, and is unquestionably one of the freest and best. Where Roses are planted out and trained to the roof or otherwise, they

should be well supplied with liquid manure, keeping free from aphides by fumigation and from red spider by forcible syringings, applying flowers of sulphur for mildew.

THE BEE-KEEPER.

THE STEWARTON HIVE.

MR. PETTIGREW says, in his article on the Stewarton hive, that an attempt is being made by the Bee-keepers' Association to introduce the Stewarton principle on the straw hive. That has been done many years ago in Ayrshire, and is used by many bee-keepers, especially in the neighbourhood of Mauchline, where it was first introduced. This hive goes under the name of the Mauchline-Stewarton. The hive is circular, about a foot in depth, with bars the same breadth as those in Stewarton attached to a wooden rim 15 inches in diameter and supplied with slides. The principle of working is similar to that adopted in the Stewarton, a swarm being hived into one of the skeps. A Stewarton super is placed on the top when combs in the body of the hive are nearing completion. The two side slides are withdrawn, and should honey be coming in plentifully the other slides may be drawn an inch. By only withdrawing two side slides of the hive you are certain of getting honey-comb uncontaminated by brood or pollen.

In two instances when I assisted in removing a super when all the slides had been withdrawn, brood in the one case and pollen in the other was found. If the swarm is strong in bees and the weather is favourable other boxes may be placed over, first removing the lower super as soon as all the cells are sealed over. This may be known without raising super by merely drawing the shutters and looking through the window in front and behind. If all the cells are seen to be sealed it is ready to be taken away. If we wish to prevent a stock hive from swarming, as soon as the bees have thoroughly occupied the super a hive is placed underneath.—W. F.

PROGRESS OF APICULTURE IN THIRTY YEARS.

DURING the last thirty years great discoveries have been made in the natural history and general management of bees; and while the habits and instincts of the honey bee are the same to-day as thousands of years ago, the methods employed to develop and utilise their value and enable the bee-keeper to prosecute his business with intelligent oversight have been numerous and very valuable, because mainly practical in their application to the end sought—namely, the improvement of the stock; to acquire a knowledge of the habits of the bee; better to utilise their labour, hence greater profits, the latter mainly the greater desideratum of the Yankee mind.

The invention of the moveable-comb frame hive, introduced by Mr. Langstroth about 1850, opened up a wide field of study; in fact it was the invention of the age as regards intelligent bee-keeping, and upon it has hinged most of the progress that has been made since. By its use we were enabled to go inside the hive and prove those things at which naturalists had hinted. It enabled us to practise artificial multiplication of swarms, or prevent natural swarming when desirable. That bees, deprived in any way of their queen, had the means to rear another one, had long been known, but till now the knowledge was of but little practical value. Now we are enabled to rear queens at will, to become acquainted with their good or bad qualities, and to breed and perpetuate the one or discard the other; and also if another race of bees is thought to be superior to the ones we are breeding, the moveable frame enables us to introduce foreign stock without loss.

Science has also demonstrated that to elaborate and build comb causes bees much labour, and that it is at the expense of a large quantity of honey. Take an ordinary bee hive of 2000 cubic inches capacity, and to fill it with nice new combs requires labour sufficient to bring in 30 lbs. of honey, and the elaboration of wax to form material for the building of the combs requires 30 lbs. more. We find that 60 lbs. at least of honey has been the cost of filling each hive. Enterprising bee-keepers sought to obviate in some measure this outlay, and the result has been the honey extractor, whereby the newly closed cells are uncapped and the frames with combs attached are taken from the hive, the bees brushed off and then placed in the machine and rapidly revolved, emptying the honey from the cells, and then the combs replaced in the hive to be refilled, and the process repeated when advisable.

Twenty years ago, had some timid apiarist ventured to suggest the possibility of making artificial comb which the bees would readily accept and utilise the same as their own, he would have

been a fit subject for a lunatic asylum; but nearly as long ago as that the embryonic idea took root in the brain of the late Samuel Wagner, and the result has been the production of foundation comb that can be attached to the frame and placed within the hive and as readily used by the bees for all purposes as their own.

These are some of the wonderful results that have accrued by the application of certain principles in accordance with the no less wonderful instincts and habits of the honey bee.

But while the results of the new light that has dawned upon the bee-keeper's pathway has been to lead to grand achievements in summer management of the apiary, the successful wintering of bees has not yet come to be demonstrated by any set rules however carefully observed. Comparatively speaking it is easy to successfully manage the apiary during the warm months, for success hinges very much upon whether the season is auspicious for honey-gathering; but during the winter and spring the bee-keeper often finds all his wisdom at fault. There are a few rules it is well to observe, and these when put in practical use are as near right as any we have tried. To be brief, for this article has already exceeded its proper limits, let us observe—

1, Bees in the moveable-frame hive are not in their normal condition, hence some means should be adopted to prevent a low temperature within the hive. Such condition is best afforded by wintering in a dry cellar.

2, The larger the mass of bees consolidated together the less susceptible are they to a low temperature; hence by the 1st of November remove a frame and put the remaining ones farther apart, also cut passage ways through the combs to enable the bees to communicate freely through each sheet of comb.

3, Quietness is essential to their prosperity, hence the hives need to be placed in a dark cellar, and if the cellar is used for other purposes put a partition across the room so the light may not disturb them.

4, A current of air continually passing from beneath up through the hive is detrimental to the health of the bees; then contract the entrances and leave small spaces between the combs and bottom board; place quilts upon the top of frames, remove the caps from the hives and keep at a temperature of 40° Fahr.; higher than this will cause uneasiness, lower will do no harm.

5, Be sure that each hive contains at least 15 lbs. of honey, disturb as little as possible until spring. These rules followed, your losses will be less than in any other way.—L. F. ABBOTT (in the *American Bee Journal*).

FORMATION OF A BEE-KEEPERS' ASSOCIATION FOR WORCESTERSHIRE.

A MEETING, convened by the Rev. J. Ross Barker and Mr. A. H. Martin of Evesham, was held in the Guildhall, Worcester, on Saturday last, to take into consideration the desirability of forming a Bee-keepers' Association for the county of Worcestershire. There was a good attendance of persons residing in various parts of the county, including several ladies, who are desirous of spreading a knowledge of the improved methods of bee-keeping throughout the county. The chair was taken by Col. W. Stalland, the Mayor of Worcester. Mr. J. Huckle, Assistant Secretary to the British Bee-keepers' Association, attended the meeting, and gave information as to the mode of forming an association and the means whereby the association would be enabled to carry out its work.

It was resolved unanimously—"That it was desirable to form a Bee-keepers' Association for the county of Worcestershire," and that subscribers of 5s. and upwards be considered as members. Mr. A. H. Martin of Evesham was unanimously elected Honorary Secretary. Lord Beauchamp has signified his assent to act as President of the Association.

PLANTS FOR BEES.—A correspondent of the *American Bee Journal* states that his bees have gathered a large quantity of honey from the flowers of *Rudbeckia fulgida*, of which he states there were one thousand acres in his neighbourhood. *Pentstemon Digitalis* also grows abundantly in the district, and from these two a large portion of his honey is obtained. Both these are North American plants; but they are cultivated in this country.

TRADE CATALOGUES RECEIVED

Ernest Riemschneider, Altona, Hamburg, Germany.—*List of Bulbs and Herbaceous Plants.*

S. Dixon & Co., Amhurst Nursery, Hackney, and Moorgate Street, London.—*Catalogue of Chrysanthemums and Roses.*

Charles Turner, Slough.—*Catalogues of Roses, Fruit Trees, and Florists' Flowers.*

Francis and Arthur Dickson & Sons, The Upton Nurseries, Chester.—*List of New and Select Roses.*

Edmund Philip Dixon, Hull.—*Catalogue of Roses, Trees, and Shrubs.*

Henry Bennett, Pedigree Rose Nursery, Shepperton, Walton-on-Thames.—*List of New Roses.*



****** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Book (Bryum).—You will find Tripps' work on Mosses, published by Messrs. George Bell and Sons, 4, York Street, Covent Garden, one of the best, but the price is higher than you named, and we do not know any reliable work published at so low a price.

Astrantia major (J. S. B.).—An herbaceous plant, which is very easily grown, as it succeeds in any soil that is not very heavy. It can be increased either by seeds or division of the plants. Several other species are in cultivation, one of the best being *A. carniolica*. A minor is rather more tender than the others, and one very large-flowered form is called *A. maxima*.

Pyrus japonica (Miss Tregoning).—The fruit is that of *Pyrus* (*Cydonia*) *japonica*. There are many varieties of this, producing various kinds and qualities of fruit. That which you have sent is a particularly handsome one, and worth cultivating. You can make marmalade of it in the same way as you would of the ordinary Quince.

Single Dahlias (W. B.).—The light flaked variety sent is worthless; thousands better will be thrown away this autumn. The only two varieties amongst the seedlings you have sent that we consider worthy of cultivation are the very dark one, and there are plenty similar, and the scarlet, which resembles *gracilis superba*.

Large Pears (G. H.).—We have no record of the heaviest Easter Beurré and Beurré Diel Pears that have been grown in this country. You have probably grown some of the heaviest. We will publish any records of heavy Pears that you or other of our correspondents may possess if they are forwarded to us.

Fruit Trees for Planting (Cheshire).—When you state you want Apples on Quince stocks we presume you mean Paradise stocks, and you must order the trees on this stock and not on the Quince. Suitable varieties for your purpose are of *Apples*—Lord Suffield, Cellini, Stirling Castle, and Ecklinville Seedling. *Plums*—De Montfort and Green Gage. *Cherries*—Early Rivers and Governor Wood.

Pears for Walls (G. P., Hants).—If you have the means for growing early varieties as espaliers or pyramids we should advise you to do so, as unless you grow the trees in the form of diagonal cordons you can only have a small collection on the wall. Read the notes on page 337 last week. You will find some of the best varieties there for both forms of culture. If you will let us know what your decision is in the above respect, and need further advice, we will readily attend to your letter.

Planting Tigridias (M. E. H.).—Spring is the best time for planting these bulbs, selecting fine weather either at the end of March or the beginning of April. Light rich soil suits them well, and if left out during the winter a little protection is advisable, though, perhaps, the preferable practice in cold damp localities is lifting and storing the bulbs in a dry position.

Mushrooms Decaying (J. C.).—The Mushrooms are rotting from a fungoid attack. This fungus, which is occasionally so destructive in Mushroom houses, is *Xylaria vaporaria*, and is usually introduced with particles of unpurified manure. When it once gets into a house it is a pest about as bad in its way as the phyloxera, and a clearing-out, disinfecting, and lime-washing process becomes necessary for its extirpation. Manure, where horses have had much medicine or have been fed with Carrots largely, would produce almost similar results; and in all likelihood if really suitable manure were used in a fresh place the same spawn would produce good crops of Mushrooms.

Sphagnum (S. B.).—We have received the samples of sphagnum moss, but do not understand what information you require. You say "No. 1 is from an Orchid received from a London nursery; No. 2 is from one of our Bristol nurseries, both growing on the same plant, both receiving same treatment. If you will kindly give me the reason at your earliest convenience I shall feel much obliged." We will willingly oblige you if we can, but further particulars are necessary for enabling us to do so, and better "samples" than these, which are crushed and dried by being enclosed in a letter.

Culture of Oncidium Rogersi (A New Subscriber).—This is a Brazilian species, and one of the most beautiful of those flowering in winter, bearing a large panicle of blooms, the lips being very broad, somewhat three-lobed, and rich yellow in colour. It requires warmer quarters than several of the species, and would not succeed satisfactorily in your cool Odontoglossum house. Many cultivators find that the *Cattleya* house suits it better, and if you have not such a structure or a warm Orchid house place the plant in a stove. The usual compost of peat and moss is needed if the plant is grown in a pot.

Fruits of Cycas revoluta (Inquirer).—You will find an engraving of the fruit of *Cycas revoluta*, with some particulars concerning their structure, on page 27, January 8th, 1880. The fruits are said to be edible, but we have never tried them. *C. circinalis*, which is nearly related to *C. revoluta*, produces similar fruits, and in the Moluccas these are eaten after being fermented and roasted. Sago is prepared from the pith of both plants. Specimens which have

fruited occasionally bear a weakly appearance for a time, but they soon recover under good treatment. It must, however, be remembered the fruits produced are not always perfect—indeed, that is seldom the case with cultivated plants, as fertilisation is seldom effected.

Annuals for Spring (F. S.).—You say the plants are "strong," possibly they are too strong, as if very forward and succulent, and especially if they have not been thinned so that each plant has had space for producing side growths, they are liable to be destroyed whether planted out or left in the seed beds. Assuming your beds are ready you had better plant them out now, as there is time for them to get established before winter. A few evergreen branches will afford them some protection in dry weather. If very forward the Virginian Stocks and *Nemophila* cannot be relied on for passing the winter safely; the others are quite hardy, but often made tender by overcrowding in the seed bed.

Trees not Bearing (C. B.).—You say the trees have borne little or no fruit for seven or eight years, but you do not say whether they are old or young trees, luxuriant or decrepit. Without knowing the condition of the trees it is impossible to suggest a mode of treatment. Are they young or old trees? are the branches trained thinly? and do they produce blossom freely? Many trees have failed to bear fruit during the past few years, not because of any constitutional fault of the trees, but because severe frosts and inclement weather have destroyed the blossom. If you can make the state of the trees intelligible to us we will give you the best advice we can on the matter.

Renovating Vines—Warts on Leaves (F. C.).—Your proposed plan is good generally, but appears to us to have one great fault. By being good generally we mean the plan of having the roots in a "sort of long box," which you describe will answer; but by elevating it 2 feet above the surface of the soil would render the roots liable to injury from drought in summer and frost in winter, unless soil were banked in a sloping manner against the front slabs. By taking precautions to prevent the contingencies indicated you may carry out your project with considerable hope of improvement resulting to the Vine. We have known Vines seriously injured, in fact nearly killed, when a border has been above the ground level, the front being supported by "slabs" as you propose, and these fully exposed to the weather. The warts on the Vine leaves in your case are the result of the foliage not being able to appropriate and elaborate the sap at this usually dull period of the year. No injury whatever will be done to the Vines by the few leaves at the top being thus affected.

Repotting Rose (Idem).—If the plant is healthy, and the roots also in a fresh active state, the pot being fairly filled without being firmly crowded with them, you will probably do well not to disturb them materially. All that is needed in such a case, and assuming the plant is required to flower in its present pot, is to dig out the soil round the sides of the pot half way down, more or less, and remove it with all that is loose which you can scrape off the surface, and add fresh turfy loam, enriched with about a fifteenth part of bone meal and a tenth of wood ashes, working it amongst the roots carefully, and pressing it very firmly. Pruning should be limited to removing any soft unripe tips and shortening any weak or wiry-looking growths. Peach mildew is a fungus that attacks the shoots of the trees, and sometimes the fruit, in the same way that Roses are attacked. It is very injurious.

Planting a Row of Raspberries (T. J.).—Single canes are best, and they are always so sent from a nursery. Procure them early in November; cut off the upper part of each cane to within 18 inches or a foot of its base, according to its size, the weak canes being shortened most; and plant them a foot apart in the row. Before planting stir the soil deeply, and make it very rich with manure. Or, what is even better, make a trench 3 feet wide and 18 inches deep; fill three-fourths of it with old leaf soil or manure from an old hotbed, cover with good garden soil, and plant your row along the middle of the trench. We planted several rows in this manner seven years ago, and they still continue bearing heavy crops of excellent fruit. If you can give them frequent drenchings of house sewage during the season of growth you will be well repaid by growth of extraordinary vigour and fruit of proportionate abundance and size.

American Blackberries (Idem).—Treat these at first just as you do the Raspberries in planting and pruning, only you will probably find that the young plants have three or four stems of about equal vigour. Cut off any weakly stems; retain the others, shortened like the Raspberries. Do not attempt training the subsequent growth in an erect formal manner, for the long vigorous branches may be trained horizontally or diagonally as appears best adapted to retain it unpruned. We have a long row, with the growth interlaced into a perfect thicket, that is wonderfully prolific of fine fruit. A novel, useful, and attractive feature may easily be added to a garden by planting them 3 or 4 feet apart along the sides of a path and training them overhead upon arches; the long shoots may then be taken at will from arch to arch, connecting the whole into a pretty arcade. This plan will commend itself in all gardens where economy of space is important.

Pruning a Cluster Damson (Idem).—The Cluster Damson yields fruit abundantly, pruned precisely like the Plum, and trained as a pyramid. But if you can afford room for an unpruned tree or two do so, as you will eventually obtain most fruit from them. It makes lateral growth so thickly that pruning a few trees is a tedious business, always to be avoided if possible.

Planting Box Edging (Idem).—Box edging should be planted either in autumn or winter—not in spring. When a considerable length is required it becomes expensive; and it is a fact worth knowing that cuttings taken off any time during winter, and inserted as for a permanent edging along the margins of paths, make roots and grow freely during the next season of growth. Care must be taken to press the soil firmly about them by treading when they are put in, and due care must also be exercised to replace them securely after hard frost, which loosens, and sometimes causes them to fall out of the soil.

Dr. Hogg Peach (A. S.).—Mr. Luckhurst, who has had much experience with this and other Peaches, writes as follows:—"This fine Peach answers perfectly against an open wall if it is thoroughly screened from north-east winds in spring, to the baneful effects of which its foliage is so sensitive as to be often destroyed. The tree is a vigorous grower, and the fruit is large, handsome, highly coloured, and of delicious flavour. It is in the front rank of second early varieties, but owing to its tendency to suffer seriously from leaf blister in unkindly springs, the more robust Rivers' Early York should always be planted with it. This rule holds good also with both early and late kinds. With Hale's Early plant Early Beatrix, which is much better out of doors than in, and to follow Dr. Hogg there is none better than Grosse Mignonne, and for late sorts Barrington and Walburton Admirable."

Chionodoxa Luciliae and Freesia refracta alba (F. R. S.).—Particulars concerning the culture and history of both these pretty bulbous plants have been given in this Journal with illustrations, the first named on page 249, vol. ii., new series, March 31, 1881, the second on page 171 of the same volume,

March 3rd. From the descriptions there given you will be able to determine whether your plants are correctly named. The *Chionodoxa* is quite hardy, but a large quantity of *Scilla bifolia* has found its way into gardens under the above name, and beautiful though that bulb is, it cannot be accepted as a substitute for its charming relative. If grown out of doors the *Chionodoxa* can be treated similarly to the *Scillas*, and the same remarks apply to its cultivation in pots, which perhaps if you have only a few bulbs will be the best to adopt. One bulb in a small 60-size pot would be sufficient, and half a dozen in a 48-size pot. Rich light fibrous loam, with leaf soil, well-decayed manure and sand, form a suitable compost, well draining the pots. The *Freesia* may be treated in precisely the same manner. Both after having been buried in cocoa-nut fibre refuse and ashes should be grown in a greenhouse, though the *Freesia* should have the warmest position. This will answer the inquiry of another correspondent, "John George."

Bones as Manure (F. J. J.).—They form a valuable and lasting manure on account of the abundance of phosphate of lime they contain. They are sold in a broken state "as half-inch bones" by manure dealers for agricultural and horticultural purposes, also in the form of meal; they are further reduced to superphosphate of lime by the action of acids. For your *Roses* you cannot use anything better than bonemeal, mixing it with the compost at the rate of a fifteenth part of the bulk used, or one potful of meal to fifteen of soil. After the *Roses* are established further applications can be sprinkled on the surface of the pots as often as required for maintaining the vigour of the plants.

Alpine Strawberries (J. S.).—It is a wonder that the second packet containing fruit did not, as you say, "come to grief" like the other. Had the fruit been packed so that it could not move, which would have been the case had the box been firmly filled up with leaves, it would have reached us in good condition; but half filling a tin box with Strawberries and sending it through the post can only have one result—namely, the fruit by being dashed from side to side arrives little better than a mass of pulp: this was so in your case, and the escaping juice had converted a portion of your letter into a mass of pulp too. You have done well to direct attention to Alpine Strawberries; when well grown they are useful for dessert in the autumn, and to many persons are very acceptable. We regret the failure you have incurred. You cannot do better than continue the culture of a fruit you have found so serviceable, and we doubt not that you will, profiting by past mishaps, be able to send us good examples another year.

Variations in Apples (N. H.).—The three samples of fruits you send from the same tree represent an interesting case of bud-sporting. They are quite dissimilar, and a less observant person than yourself might have attributed the result to grafting, but the fruits before us are evidently variously developed (as to colour) forms of the same variety. Some varieties of Apples now in cultivation originated from bud sports. One instance occurs to us—namely, the Scarlet Golden Pippin, which sported from the normal variety in the garden of Mr. Mathew in the Carse of Gowrie about half a century ago, and was perpetuated by grafting. We have little doubt that if you were to graft some stocks with scions from the branch that produces the highly coloured fruit that you would establish a distinct and beautiful variety of Barton Freebearer, and which by its rich colour would probably be acceptable for market purposes. Both the dessert Apples are Court Pendu Plat, the slight difference in form being possibly the result of the influence of the stock. The other variety we recognise as the Irish Reinette of Lancashire. With the information relative to Dumelow's Seedling we were quite familiar. We are obliged by your letter in reference to The Domino and Lord Lennox Apples, and we shall be glad to know the origin of the varieties, or, failing this, the origin of their names.

Various (H. J. G.).—The seeds of Apples and Pears may be sown as soon as the ground is in a dry free-working condition in spring. The seedlings will do for stocks, but if you want dwarf early-fruited trees the Apples must be worked on Paradise and the Pears on Quince stocks. The word "bothy" is Scotch, and applies to a plain dwelling on an estate for the accommodation of single men, of which the rooms or bothies in gardens for young men afford examples. "The Botanical Magazine" is published monthly by L. Reeve & Co., Henrietta Street, Covent Garden, London, price with coloured plates, 3s. 6d., uncoloured, 2s. 6d.

Names of Fruits (F. W. N.).—1, Thompson's; 2, Comte de Flandre; 3, Fondante d'Automne; 4, Beurre Charnesse; 5, Dumelow's Seedling; 6, Lincoln Codlin. (S. M. K.).—1, Reinette de Caux; 2, not known, not Blenheim Pippin; 3, Gravenstein; 4, Reinette de Caux; 5, not known, probably local. (W. N.).—The Apple is the Scarlet Pearmain, the Pear not known and worthless. (G. B. C.).—1, not known; 2, Pearson's Plate; 3, Hoary Morning. (A. S.).—The Apple is, we think, Lord Suffield, but the specimens are not quite characteristic; it is either that or a variety named Domino, which is a favourite in the midland counties. We do not recognise the Pears, both of which are inferior, and we should not consider worth the space they occupy.

Names of Plants (J. S. B.).—*Astrantia major*, see above. (S. H.).—The specimens were very small and not well packed, but we recognise the purple flower as *Aster amelloides*, and the rose-coloured one as *Aster novi-belgii rubra*. The other was quite withered. (J. S.).—1, *Begonia natalensis*; 2, *Begonia Weltoniensis*; 3, *Selaginella Braunii*; 4, *Nephrolepis tuberosa*. (G. P., Hants).—1, we do not recognise; 2, *Myrtus apiculata*; 3, *Abelia rupestris*.

COVENT GARDEN MARKET.—OCTOBER 18TH.

A STEADY trade doing, with prices well maintained, English Pines being in good demand. Vegetables in good supply.

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Lettuces.....	score	1 0 to 1 6
Asparagus.....	bundle	0	0	0	Mushrooms.....	punnet	1 0 1 6
Beans, Kidney....	100	1	0	0	Mustard & Cress..	punnet	0 2 0 0
Beet, Red.....	dozen	1	0	2	Onions.....	bcn.	0 6 0 0
Broccoli.....	bundle	0	9	1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	2	6	3 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0	6	1 0	Peas.....	quart	0 10 6 0
Capsicums.....	100	1	6	2 0	Potatoes.....	cwt.	6 0 7 0
Carrots.....	bunch	0	4	0 0	Kidney.....	cwt.	6 0 8 0
Cauliflowers.....	dozen	2	0	3 0	Radishes.....	doz. bunches	1 0 0 6
Celery.....	bundle	1	6	2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2	0	4 0	Salsify.....	bundle	1 0 0 0
Cucumbers.....	each	0	4	0 6	Seorzoneria.....	bundle	1 6 0 0
Endive.....	dozen	1	0	2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0	3	0 0	Shallots.....	lb.	0 3 0 4
Garlic.....	lb.	0	6	0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0	2	0 0	Tomatoes.....	lb.	0 2 0 4
Leeks.....	bunch	0	3	0 4	Turnips.....	bunch	0 2 0 4

FRUIT

		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	2	0 to 7	0	Lemons.....	case	20 0 to 30 0
Apricots.....	doz.	1	0	1 6	Melons.....	each	2 0 3 0
Cherries.....	½ sieve	0	0	0 0	Neectarines.....	dozen	2 0 10 0
Chestnuts.....	bushel	0	0	0 0	Oranges.....	100	6 0 10 0
Currants, Black..	½ sieve	0	0	0 0	Peaches.....	dozen	4 0 12 0
" Red.....	½ sieve	0	0	0 0	Pears, kitchen ..	dozen	1 0 2 0
Figs.....	dozen	0	6	1 0	dessert.....	dozen	1 0 2 0
Filberts.....	lb.	0	6	0 0	Pine Apples, English	lb.	3 0 4 0
Cobs.....	100 lb.	0	0	45 0	Raspberries.....	lb.	0 0 0 0
Gooseberries.....	½ sieve	0	0	0 0	Strawberries.....	lb.	0 0 0 0
Grapes.....	lb.	1	0	3 0			



POULTRY AND PIGEON CHRONICLE.

THE DEVON BREED OF CATTLE.

CATTLE are generally divided into three varieties—The Short-horned, originally found in the northern and north-eastern counties of England; the Middle-horned in the western part of England, in Wales, Scotland, and Sussex; and the Long-horned in the midland counties and in Ireland, all agreeing that the Middle-horned, which includes the Devons, are descendants of the aboriginal breed of Great Britain. From the earliest records the Devons can be traced as the distinct breed peculiar to the county from which they derive their name, and of the portion of Somersetshire adjoining it, where from time immemorial they existed alone, their handsome red curly coats being so well adapted to protect them in the cold moist climate of their hill country.

Mr. Youatt, one of our earliest writers, in his excellent work on cattle says—"The slightest observation will convince us that the cattle in Devonshire, Wales, and Scotland are essentially the same. They are Middle-horned, tolerable but not extraordinary milkers, and remarkable rather for the quality than the quantity of their milk, active at work, with an unequalled aptitude to fatten. They have all the characteristics of the same breed changed by soil, climate, and time. We may almost trace the colour—namely, the red of the Devon, the Sussex, and the Hereford; and even where the black alone are now found the memory of the red prevails, and has a kind of superstitious reverence attached to it in the legends of the country. In many parts of Scotland and in Wales the milk of the red cow is considered to be a remedy for every disease, and a preservative from evil."

In viewing this choice breed of cattle as compared with other varieties, they may be placed amongst other cattle, as the South Downs are amongst other breeds of sheep; for as the South Down is the choicest of all the tribes, so are the Devon cattle in comparison with all other cattle. Whether we view them for grazing purposes and the profitable consumption of grass and other cattle food, or whether we take them as valuable for the butcher, they stand in the highest position. The South Down sheep always obtain the highest quotation in the mutton market, and it is the same with the Devon cattle—they always secure the highest quotation in the beef market; for not only is the flesh of South Down sheep of the best quality, but the joints are of moderate size and weight, in the same respects the Devon beef is specially noted for its beautifully mixed and marbled fat and lean. The size comparatively of the joints is small and of a moderate weight, which to the consumer is often a matter of great importance in household management.

In describing the style and outline of the Devon breed of cattle we cannot do better than quote from Mr. J. Tanner Davy's, as given in the "Devon Herd Book," he being the original Editor.

He says:—"The outline of a fat Devon very nearly approaches a parallelogram—angular bony projections are rarely found amongst the best bred ones, but their frame is level from the top of the shoulders to the tail. The belly is longitudinally straight and well filled out at the flanks, which should be easily found by the unbent fingers; the breast is wide, and comes out prominently between the fore legs, extending down to within two or three inches of the knee-joint and towards the udder in rolls of fat. The neck is rather long and thin, increasing towards the shoulder, which is tapered off to meet it where the neck-vein forms a sort of collar in front of the shoulders, connecting the fat of the shoulder with the fat of the breast. In the fore quarters the Devons probably excel all other breeds by the shoulders being placed so obliquely that there is no hollow behind them, but the part is well filled out with good flesh and fat, preserving an unbroken line, and promoting a uniform covering of fat throughout every part; commencing at the rump, over the pin bone, edge of the loins, ribs, shoulders, and on to the neck, without patch or excess of any kind. In breeding it is most important to get animals with shoulders placed obliquely, for it is found in practice to be much more difficult and to require a longer time to correct the fore quarter than the hind quarters. It is a remarkable fact in the form of the best Devons that their shoulders are so placed and packed that they can, like a similarly formed horse, go up and down the steep and rugged northern Devonshire hills with much greater facility than what are called the 'large Devons.'"

We do not dispute that the description here given is the pattern to be adopted, and has been the practice of the best breeders for a long series of years; but we say that the general character of the Devon cattle as a whole is especially defective in the fore quarter, very light without that prominence at the breast as is generally the case with the Herefords and Shorthorns. It is, however, extremely important that the fore quarter should be heavy and full, not only for the advantage of the grazier, but also for the benefit of those who work them in the fields, for it must be admitted that the weight and power given to the animal by heavy sound fore quarters is especially desirable whilst working in the collar or yoke. It is true that quite a revolution has occurred in the matter of working oxen since steam power has been introduced; but as we have often taken occasion to show the value of ox labour irrespective of steam power, we hold that the revolution is not yet complete, but must acknowledge the superior claim of early maturity, which induces breeders to turn their money more quickly by sending "baby beef" to the market in preference to feeding or rearing their cattle for working purposes, or for feeding at full age and heavy weights. We, however, hold the opinion that the question of ox labour is worth the consideration of the home farmer, if he will take the opportunity of purchasing Devon oxen broken-in to work, and use them for the summer months, and afterwards place them in the boxes for fattening during the winter months, the chief point being to keep them at the same cost as the horses during their labour, by which means they will be doing their work effectually, and daily growing into valuable animals for fattening in the winter months. The Devons are certainly noble animals for work on the farm in the absence of steam power.

In looking over the Devon cattle at the great fair at Bampton and others as well as at the cattle shows, we have been struck with the great difference in the animals although of the same origin and breed; for we find that large and bulky animals of the same character are co-existent with a warm climate and rich pasturage, whereas smaller types and styles and their varieties are met with in colder hill districts and on poorer soils. In proof of this we may direct attention to the larger class of Devons with long and softer hair, bred in the fertile vale of Taunton Deane, as compared with those bred amongst the hills of North Devon, so celebrated for their short rich curly coats, which they usually lose after a change to a better pasturage in a vale district, with its warmer climate and its richer grazing land, but which pleasing style of coat cattle brought from a distance generally acquire by the end of autumn after having been summer-grazed on those hill pastures. There can now be no doubt that the original seat of the Devon cattle was in the district bounded by the river Taw on the west, extending from Barnstaple to about the point where the South Molton Railway station is now situated, from thence to Bampton, Wivlescombe, Taunton, then turning towards Williton, and on to the Bristol Channel, which forms its northern boundary.

Vancouver, in treating of Devon cattle in his "Report of the Farming of Devonshire," published in 1808, says, "They are an important breed of animals, active at work, and their aptitude to fatten is unrivalled," but further states "they were then declining in their general standard of excellence and numbers," which he traced to the great sale for them to other parts of

England, where the purchasers (Mr. Coke, afterwards Earl of Leicester, and others), spared neither pains nor price to obtain those of the highest proof and beauty." A little later many breeders were tempted, by the excessively high prices offered during our wars with America and France, to sell even their best cows or heifers at great prices for slaughter, their fattening propensity being so great that then, as at present, even milch cows were in the autumn almost fit for the butcher. At this time, also, purchasers from a distance carried off many of the choicest animals at what were then considered enormous prices, to found new herds in various other counties. Fortunately there were some spirited and intelligent men in the country who were justly proud of their native breed, and who would not be tempted by high war prices and by other offers to part with their best animals, but retained and handed them with their offspring down to their descendants, in whose possession in various instances they still remain. Among these breeders were the Messrs. Quartly of Molland, Davy of Rose Ash and North Molton, Merson and Michael Thorne of North Molton, the Halses of Holland, and others. Seeing what was taking place, that the best cattle were being killed for beef or bought and carried out of the district, the late Mr. Francis Quartly, a most enterprising man, sometimes outbid the butchers in order to obtain a very superior beast possessing the qualification he thought most important; thus he selected the best from many hands, and by breeding from and intermingling them with his own, he brought the Champson herd to great perfection. Cattle shows were not at that period generally established, so that few, if any, opportunities occurred of testing the merits of several herds by actual comparison. Soon afterwards one was established at Torrington; further on, and about 1831, the Devon Agricultural Society was founded at Exeter, and soon followed by others at Barnstaple, Taunton, &c., all holding annual exhibitions, affording the public opportunities of comparing the relative merits of the various herds of animals more generally kept. Since then the establishment of railways and steamships have helped to bring out sales, giving increased facilities to purchasers from all parts of the world, including Canada, Australia, continental countries, and the United States of America. The reports from all parts are very satisfactory, stating "That Devon cattle are thriving, and are a profitable breed abroad as well as at home, and that they withstand the changes of soil and temperature well."

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The late rains have enabled the Clover leas to be ploughed on the driest soils, so that ploughing, pressing, sowing, or drilling may be accomplished simultaneously—a matter of great importance when we consider the difficulties which may occur in the event of the rains continuing to be unusually heavy during the best period of sowing the hill and dry vale lands, which may be stated to be between October 1st and November 1st. Upon the strong soils, especially flat-lying fields, the October month is the safest month for seeding them with Wheat; and as these soils are usually prepared for Wheat by a fallow or fallow green crop, the management required is not so easy and straightforward as for lea ground. All, or nearly all, strong cold soils are subject to weeds, which in the early summer months frequently injure or ruin the Wheat crop unless the seed has been drilled at from 10 to 12 inches between the rows of plants, and which can be done most effectually at the time of ploughing, either by the presser drill or ordinary drill, as fast as the land is ploughed. In the event of the drilling being deferred to a future day we have on some occasions known that it never could be seeded at all until the spring of the year. We are strong upon these points, because the best managed farm in a certain county under our knowledge from the year 1833 to the year 1871, both strong land on chalk as well as light land, the practice was to drill all corn, both Wheat and Lent corn, at 12 inches apart between the lines, and this was done with the very best results, yielding the largest crops of the best quality, of Barley especially; and although we have noticed the agricultural practices in many counties, this farm of over 1500 acres was the best managed as regards growth of corn we had ever seen during the before-named period. The quantity of seed to be used, if not a vexed question, has not been decided by any rule as to quantity, but we consider 2 bushels in October with the land in good condition quite enough, but in November, dependant upon the weather, 2½ to 3 bushels is none too much.

With respect to sorts of Wheat adapted for certain districts, under the heading of "Seed Corn for the Autumn Period" we have treated the question fully, and based our advice to the home farmers upon our own knowledge and experience. There are, however, certain new sorts of Wheat now offered by Messrs. Carter, Messrs. Webb, and other seed merchants which are highly recommended, and are stated to have produced full outside crops, some of which have been grown under the directions of the Royal Agricultural Society of England. The successful growers, and the system of culture adopted upon the soils named, is well worth the attention of the home farmer, but

should be dealt with as experiments in the first instance, owing to the variation of soil and climate in the different districts of the kingdom. Upon all cold soils it is quite a matter of necessity to plough and seed the land daily, the seeding keeping pace with the ploughing. It was a rule we practised for many years, which secured us against the risks of delay in seeding.

Live Stock.—The dairy cows, and also young stock, both calves and yearlings, should now lie at night time on the driest pastures, and also receive a little cotton cake, the cows to get it at milking time as meal, mixed with Cabbage or early Turnips passed through Gardner's cutter; the young stock may get hay if they have a shed to retire to at night, or otherwise a little cake, with cut roots in troughs similar to the dairy cows. The bullocks which have been grazing for beef will by this time have been sold, or put into the boxes or stalls for fattening, to be sold further on—at Christmas or spring as the case may require. We have often advised the home farmer in regard to either cattle or sheep to rear all he requires either for dairy work or fattening for beef or mutton; and this year at any rate the advantage of having done so will prove more than usually to his benefit. All kinds of stock, both cattle and sheep, but especially the latter, are as dear to purchase as we have ever known them, and it is certain they cannot pay for high feeding, either ewes for lambing or tegs for mutton-making. It must at the same time be understood that justice cannot be done to fattening stock without consumption of cake or corn to a considerable extent. The hill farms with their breeding flocks will pay well this year, and so will the stock kept over for the second crop of lambs on the vale farms. But generally on the vale farms sheep of any sort are too dear to pay for fattening; nor should we hesitate instead of feeding our Turnip and Swede crops with sheep to plough in two-thirds of the roots after being passed through an old cutter, greens and bulbs together, the other portion to be removed for feeding young cattle in the yards, and also, together with the Mangold crops, to fatten the bullocks in the boxes or stalls.

POULTRY AND PIGEONS

THE PRODUCTIVENESS OF HENS.

It may be useful to your readers to know reliable examples of peculiar productiveness in hens; I therefore think it worth while mentioning the following, for the correctness of which I can vouch. I have three Black Poland hens, not white-crested, but pure black. They were hatched in 1880, and in the autumn of that year were shut up in a small grass run, and have never since been out of it. It is about the worst of my enclosed runs, sloping towards the north, and somewhat exposed, on heavy sticky soil, with no scratching place, and no dry path through it. The house is a small portable one with wooden bottom. A little heap of lime rubbish in a corner is the only luxury of the birds. These three hens began to lay during last December, and from January 1st I have kept a record of their eggs, which is as follows:—January, 29; February, 19; March, 60; April, 51; May, 42; June, 21; July, 59; August, 59; September, 35—375 in all, or an average of 125 eggs per bird in nine months. Two of them are now in moult, the third is laying still on alternate days. This certainly is no mean performance for two-year-old birds in such quarters. They are fed regularly twice a day, and get occasional snacks at a third time as their feeder passes to a chicken yard near them.—O. E. CRESSWELL.

"THE PRACTICAL POULTRY BREEDER AND FEEDER."*

So much has been written of late years in connection with the subject of this little work, that one feels disposed to doubt whether there can be anything that is new to be told. Mr. Cook, however, takes up the subject in a somewhat different spirit to that of most writers. He states his object in writing the book to be "to endeavour to give in as few words as possible such plain and practical information as will enable anyone, who has little or no idea of poultry and only the smallest accommodation, to keep fowls and make them pay well." He disclaims any intention of dealing with fancy poultry, and states, as is undoubtedly the case, that birds reared only for the show pen seldom lay any large quantity of eggs. His idea in writing his book "is to describe the best fowls to keep for egg-producing and table purposes;" and he therefore has written very fully regarding the properties of the different crosses, all of which he has personally tried.

It is in the portion of the work relating to crosses that most that is

new and interesting is to be found. The directions for management, feeding, &c., are plain and practical, but are necessarily much the same as those given by the best of former writers. He dwells on the necessity for personal attention, and further points out the advantages to be gained in laying qualities from a careful selection of the best layers only as breeding stock. We doubt, however, if he sufficiently indicates the extent to which this had been done in the case of the birds whose wonderful laying powers he instances. We fear this may have a twofold evil effect upon his readers. On the one hand, those who are ignorant of the subject will imagine that it is only necessary for them to procure birds of the crosses he names in order to have an equal result in eggs to that the author cites. On the other hand, those who have had considerable experience of fowls bred without any very special regard to their laying qualities, will be inclined to throw down the book with a sneer at the author's faith in the credulity of his readers.

Mr. Cook has apparently experimented in the matter of crossing the various breeds to a greater extent than any other writer. He advocates first crosses as being best, and here we may note a trifling confusion in his use of the word "pure," as applied to a cross. He speaks of pure cross-bred fowls when he evidently means birds bred from pure-bred parents on each side, and which are generally known as birds of a first cross.

As a rule, the author seems to have used Cochin in preference to Brahma crosses; but in his introductory remarks upon crossing he says that if it is more convenient such substitutions as Minorca for Spanish, or Crève Cœur for Houdan, or Brahma for Cochin, may be made. We cannot, of course, do more than select for mention one or two of the many crosses instanced.

Hamburgh-Cochins are described as very good table birds and enormous layers, averaging 240 to 250 eggs per annum. They do well in confinement or with a large run.

Houdan-Cochins are described as very hardy and easily reared, good table birds, and layers of large brown eggs. Six hens of this breed averaged in the winter of their first and second years twenty-six eggs per week, and the author considers 240 eggs per annum about a fair statement of their laying powers.

For table purposes the author recommends Game-Dorkings and Houdan-Dorkings, the latter being also spoken of as good all-round birds where there is an ample run.

We can safely advise a careful perusal of the entire work to such of our readers as desire to take up poultry-keeping with a view to the return in eggs or table fowls, and those who already do something in this line will also gain much useful information from the author's narrative of his experiences.

OUR LETTER BOX.

Incubator (Ramalho).—You can gain the information you require by writing to Messrs. Christy & Co, 155, Fenchurch Street, London.

Andalusians (Inquirer).—Yes, a fifth claw is an absolute disqualification in the hens of the above breed.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882. October.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun.	8	30.095	52.0	51.1	Calm.	54.0	60.4	45.2	69.2	40.6	—	
Mon.	9	30.163	53.9	52.5	N.E.	52.9	65.3	46.9	89.3	41.8	—	
Tues.	10	30.090	52.5	51.8	N.E.	53.0	62.8	47.7	75.2	42.3	0.043	
Wed.	11	29.723	57.6	56.5	S.	53.9	61.5	52.8	67.2	48.2	0.378	
Thurs.	12	29.516	51.2	49.5	N.W.	51.3	59.7	48.9	81.6	49.3	0.046	
Friday	13	29.766	50.9	50.2	N.W.	53.8	63.0	45.8	88.0	42.2	0.017	
Satur.	14	29.968	55.0	52.1	N.E.	51.2	58.0	50.7	66.4	52.4	—	
		29.903	53.3	52.0		53.7	61.5	48.3	76.7	45.3	0.484	

REMARKS.

- 8th.—Fog in early morning; fine calm day; much haze.
 9th.—Fog in morning; fine autumnal day; distinct solar halo in afternoon.
 10th.—Dull and hazy; rain in evening.
 11th.—Warm, dull, generally rainy.
 12th.—Rain in early morning, afterwards fine, but not very bright.
 13th.—Fog early, afterwards very bright during the morning; afternoon and evening cloudy.
 14th.—Fair but overcast.

A dull autumnal week, but the temperature still above the average. Very cloudy, especially at night.—G. J. SYMONS.

* "The Practical Poultry Breeder and Feeder." By William Cook. *Journal of Horticulture Office.*



26th	TU	
27th	F	
28th	S	Sale of Bulbs at Mr. Stevens's Rooms, Covent Garden.
29th	SUN	21ST SUNDAY AFTER TRINITY.
30th	M	
31st	TU	[Morris, Sale of Nursery Stock at Tottenham by Messrs. Protheroe and
1st	W	Sale of Trees and Shrubs at Godalming by the same firm.

VINES IN POTS.

WHERE Grapes are wanted very early in the season to maintain a supply no one will question the value of Vines in pots. Not only are they useful for supplying a few early Grapes, and thus save permanent Vines the sharp forcing required to produce ripe Grapes in April, but for a midseason or late supply they are equally valuable where Vines require replanting and the supply of Grapes must not fail. Well-ripened canes allowed to start slowly and ripen their fruit from June onwards will produce some very serviceable Grapes if properly managed. Those ripened very early may not be quite equal in quality to those ripened later, still the produce may be very creditable indeed. Grapes produced from Vines in pots are generally regarded as of inferior quality, and on this account permanent Vines are forced onwards and fruited early for the purpose of maintaining the supply. This in time cannot fail to impair the health and energy of the Vines.

To produce fruit of average quality early in the season from Vines in pots it is important that they be early and well ripened, and to accomplish this there can be no doubt that "cut-backs" are the best for this purpose. I am persuaded that many failures occur in the culture of Vines in pots through premature ripening of the canes. Thousands of Vines annually that are raised in pots for forcing, when destitute of foliage and considered ready for forcing, should have been maturing their foliage, and thus developing their buds. I do not say that skilled gardeners who prepare a few Vines in pots for their own purpose tie them to some hedge or fence as soon as the wood is brown for the first wind to batter the foliage or early frost to clear it all off. Those who have to rely upon their Vines for fruit know the importance of preserving the foliage as long as possible and properly ripening the canes; but yet the barbarous system alluded to is largely practised.

Considering, however, that the Vines to be forced are in the best possible condition in autumn, the crop of fruit very much depends afterwards upon the treatment during the forcing season, whether the Grapes are of good or inferior quality. Heavy cropping is one cause of Grapes being of poor quality, and this is as marked in the culture of Vines in pots as with those planted permanently, and in many instances more so. How can a Vine in a 10-inch pot bring to such perfection ten or fourteen bunches as it could half that number? but even half that number are too many if the bunches are heavy. If the crop is too heavy, size of berry, quality, and general finish

are inferior, and Grapes that give but poor satisfaction are the result.

Many growers fruit Vines in the pots they were grown in; but I have satisfied myself that this is not the best or most satisfactory system. However good and rich the soil may have been, the young Vine must have exhausted it by the end of the season. Rich top-dressings of soil and manure will certainly help them, with a free use of stimulants, every time watering is done, but even this is not sufficient. When the fruit commences colouring liberal quantities of stimulants should be discontinued, or the fruit may possess but little flavour; but aid is actually discontinued under the above system at a time when the Vine requires liberal treatment, and the berries in consequence are comparatively small. I have failed at least to produce Grapes as good in berry and quality generally under the system described as I have by shifting the Vines into pots 4 inches larger than those they were grown in after they were well started into growth. This system has been previously described in these pages, and the Vines require little or no assistance with liquid manure while growing. The fresh soil given them will be ample to sustain them until the fruit is ripe, which will be of a superior quality.

I have read in reference to Vines in pots, "Fruit once, and that heavily." Now the question arises whether it is wise to do this or retain them for a longer period than one year. If cropped heavily they are useless after the first season. If cropped fairly and retained a second year they will produce better Grapes than in the first instance; but to accomplish this successfully they should be planted out in narrow borders of good soil instead of placing them in 14-inch pots. By so doing only one house is occupied with the Vines, which would not be the case if young canes were prepared annually, fruited, and then thrown out. This is important in the majority of gardens, as house room is often limited. Another advantage is that the Vines would have a good hold of the soil, and by being forced early one season would readily start freely and vigorously into growth the second.

Experience proves to me that this is by far the most satisfactory system. Some Vines transferred from 10 into 14-inch pots early last year carried an excellent crop of well-finished serviceable fruit. The Vines had six bunches each, the produce of one Vine weighing a few ounces less than 10 lbs. These Vines made fine wood, and were this season planted out in a narrow border of loam, to which was added a little fresh lime and a few small bones. The laterals were about 1 foot in length when the Vines were planted, and extra care was taken that they did not suffer by the want of water. The produce was again weighed from the same Vine, which this year carried the same number of bunches, weighing in all 11 lbs. Other Vines carried a greater weight of Grapes this year than the one alluded to, while none had less than 8 lbs., the number of bunches throughout varying from five to seven, according to their size. The berries were larger than last year, and would have been finer still if we had thinned them more liberally; but from the first swelling we concluded the berries would not be large, but were agreeably mistaken when the roots were fairly established in the new compost. The wood made this year is superior to that they produced last year, is well ripened, and the Vines will, I do not fear, produce some excellent early Grapes again next year.

This season we planted some small Vines amongst them that

will make good fruiting canes next year should they be wanted. From all appearances we shall not require to remove the Vines that have been fruiting for the next two or three seasons.—W. BARDNEY.

NEW ROSES.

I HAVE been again looking through the new catalogues to see what the trade have to tell us about new Roses. The list of highly recommended is smaller than usual. It ranges, however, pretty widely from the two, which is all Mr. Prince admits to large type, to the twenty of Messrs. Wood and thirty-two of Messrs. Keynes.

Mr. Turner offers a select eleven. Mr. G. Paul tells of twenty-six Hybrid Perpetuals, seven Teas, and four Hybrid Teas; he also offers a single white and a single crimson Hybrid Perpetual. Single Dahlias are certainly very pretty, but I hardly expect to see single Roses in the boxes at present.

Putting together what is said, I certainly gather that Helen Paul is about the best of the new Hybrid Perpetuals. "Light tinted flesh, changing to pure white, perfect globular flower.—G. PAUL." "Beautiful white, very large and globular.—B. R. CANT." "Light tinted flesh, changing to pure white.—G. PRINCE." "Fine, white, large, and globular.—C. TURNER." While Etoile de Lyon as a Tea is equally highly commended. "Beautiful sulphur yellow, perfection in shape of flower and habit of plant.—G. PRINCE." "Very fine sulphur yellow, said to be one of the best yellows yet raised.—C. TURNER." I have had plants of both of these for the last four months, but do not feel able to say anything about them. Helen Paul has not shown much vigour.

May Paul appears another strong grower of the red Gloire de Dijon strain; of this I hope to know more next year. I can report very favourably of Reine Maria Pia, which is a most vigorous red Tea, and one of the sweetest Roses I know. I consider it, however, less of a Tea Rose than its sister Reine Marie Henriette, a real red climber, which has been relegated into the cold shade of the Hybrid Teas. Its pointed bud and foliage are very Tea like. I am glad to see that Mr. Turner and Mr. Prince both give it in their catalogues as a Tea. An endeavour should certainly be made to induce the National Rose Society's Committee to allow it to be shown as such. Since they turned out Cheshunt Hybrid a bit of red in the Tea boxes is sadly wanted.

I ought, perhaps, also to allude to Hybrid Perpetual White Baroness. It is very pretty, but we have not yet arrived at the much-to-be-desired pure white A. K. Williams.—A. C.

LABELLING FRUIT TREES.

YOUR correspondent "J." (page 348) does well to call special attention to the neglect of this operation, which is, as you both say, not by any means "trifling." It is indeed not trifling for a gardener to come into possession of a fruit garden or orchard where there is scarcely one fruit tree named, and where he has slight chance of finding anyone to name them except the local and commonest of the fruits. The higher-quality fruits, those of most consequence to him, are not easily determined, and it takes him years before he can get them all correctly named. I can give a recent and most forcible illustration of what I mean. When I came here there was scarcely one fruit tree that had a name to it. Those that had, the labels were found so faded that it was almost impossible to decide positively what was the real name. There were two Apples that were called by a purely local name, and a name that gave one no idea of their qualities. The consequence was that these Apples were treated as the most common of fruits. They went in to the cook just as they were wanted, and were peeled and used for the most ordinary culinary purposes, and I dislike having any tree or plant about me of which I do not know the name; so I made up a basket of fruit and sent them to you for naming, and this particular one proved to be Sturmer Pippin, one of the best and latest in use of all the dessert Apples, being, as I understand, a cross between the old Nonpareil and Ribston Pippin. Well, since it had its right name it has been put to its proper use, to the great pleasure and satisfaction of all concerned, and is raised from being anybody's Apple to the dining-room dessert dish, where it proves to be a very great favourite. I could give many more instances of this prostitution of high-class fruits to common purposes from ignorance of the name if necessary. It is not necessary.

I would like to warn those who are about putting zinc labels to their fruit trees to pause before they use lead wire to fasten them on with, as recommended by your correspondent "J." I know a young orchard that was planted on an estate and the labels were put on with this lead wire; and through the first winter

those labels that were in the swing of the wind were chafed through and scattered all about the orchard, and in the long grass many were entirely lost. Use either galvanised, or what ironmongers sell as annealed wire, or copper wire, to fasten the labels to the trees with. Such is my experience of lead wire, that I consider you might as well tie them on with ordinary string or with bast matting as with lead wire.

In addition to the method of naming each tree by a label, it is my rule always to make a plan of the orchard in my garden book—(every good gardener has a garden book full of all sorts of notes about his charges)—and dot the position of each tree in the book, and either put the name against the dot, or number the dot and put the name and number on another page. I contend that a plan of the orchard ought to be made at the time the orchard is planted, and kept with the other plans of the estate, and passed on from one occupier or owner to another, just as the other plans of drains, roads, fences, &c., are. We shall not get this done yet; but to my mind it is a thing that ought to be done.—P.

[Unquestionably it is, and we take care to do it.]

SUCCESSFUL VIOLET CULTURE.

THERE are but few places where Violets are not appreciated, and as a consequence the culture of these plants in frames is rapidly becoming fashionable; but if it became generally known how simple are the requisite cultural details to be observed still more would make the attempt. At Crichel, the beautiful Dorsetshire seat of Lord Alington, Violets are both extensively and well grown by Mr. Beck, the experienced gardener, and, as his fame had reached this district, on a recent visit I took careful note of his practice. When it is stated a pit was specially constructed for Violets, of which sixteen large lights are devoted to them during the winter, it will be readily understood how great the demand must be. Throughout the winter large numbers of blooms are picked daily, or at all events whenever the state of the outer temperature will admit of the pits being opened, and at times enormous quantities are available. On one occasion early in February, when Royal visitors were being entertained at Crichel, Mr. Beck states they could have picked nine thousand blooms had they been required. The variety relied upon for the autumn and winter supply is Marie Louise, and the blooms of this fine Violet generally measure $1\frac{1}{2}$ inch in diameter, and occasionally are still larger. To succeed these the old Neapolitan is grown, and is also particularly fine.

The pits above mentioned, which mostly face due south and are well sheltered, are constructed on a different principle than is usually the case, as they are about 5 feet high at the back and only $1\frac{1}{2}$ foot high in front. This extremely sharp pitch assures the Violets abundance of light, as the plants are disposed as near to the glass as possible without touching. No bottom or artificial heat whatever is given. The soil employed apparently consists of good enriched loam, which is trodden even and firm, and the plants are also firmly planted. No particular number of plants are disposed in each light, but the leaves just touch each other all round. This season they have made much less growth than usual, and consequently will be planted more thickly.

The method of preparing the plants is also different from that generally adopted, and it is certainly the best I am acquainted with. Large open well-enriched borders are devoted to them, and they are divided and transplanted in the spring before the pits are required for hardening off bedding plants. It must be understood the so-called plants when lifted are really clusters of plants, the strongest in the centre having produced good runners, which are pegged down about the end of August or early in September, and these prior to lifting about the first week in October are well rooted and yield some blooms. It is these rooted suckers which are separated and planted out singly the following season, the older central plants being then thrown away. A few strong crowns secured in this manner are found far superior in every respect to a greater number of weakly crowns.

As before stated, no artificial heat whatever is given to the Violets in pits, whether in pots or planted out as the case may be; on the contrary, cool airy treatment is constantly practised. The lights are drawn off at all times during mild weather, this checking both damping and exuberance of leaf-growth, two evils many find it difficult to counteract. The lights are sufficient to protect from moderate frosts, but if severe frosts are anticipated mats and litter are thrown over them. The pits during the prevalence of a very severe frost have been kept closely covered for about fourteen days; but in spite of this, and the blooms having been hard frozen, they, by being gradually thawed, have escaped apparently uninjured.

Judging from the success attending Mr. Beck's practice, the

greatest number of failures in frame culture of Violets result from excessive "coddling." Fairly well-prepared Violets, properly planted at the present time, having a light well-ventilated position, will certainly be found of great service in affording a continuous supply of blooms.—W. IGGULDEN.

CUCUMBERS AND MELONS FAILING.

WHEN I came here in February, 1881, there were some very weak Cucumber and Melon plants planted, but I soon found they made no progress in their growth, the bottom leaves continually decaying as if they were scorched. I obtained some strong plants and placed them in another house, but the leaves decayed in just the same manner as the others, and eventually died. I removed those, and I afterwards procured fresh plants and discontinued fire heat. These grew fast, and we cut a fine lot of Cucumbers from them until we recommenced fire heat, when all the plants died in the same manner. Last spring we experienced a similar trouble until we discontinued fire heat; since then we have had a good supply. We have every convenience that can possibly be had for growing them well, and they are treated suitably in every respect, notwithstanding they die in the manner I above stated. I think the fault must be the pipes, for it seems every two years they are painted with a brick-red paint, and probably this is the cause of the mischief. I should be glad to know the opinion of any reader on the subject, as well as the best way to cleanse the pipes. Melons and Cucumbers are not the only plants affected, for others, especially Maidenhair Ferns, die in the same way.—J. HEATH.

MANURES.

I PREFER good farmyard manure to all artificials, but it is not always obtainable. This year I tried the Crown Manure Company's improvers and complete manures, and perhaps your readers may be interested in the results. Unfortunately I received the Improver for mixing with farmyard manure and applying to Potatoes too late in the season to give it a fair trial. It was properly mixed and applied when earthing-up the Potatoes, with no result in the earliest Potatoes; with the second early Potatoes it prolonged the growth of the haulm and slightly increased the bulk of produce; with the later Potatoes, such as Improved Peachblow, it considerably increased the produce. Next year I intend to apply it at the time of planting, when I shall obtain a more satisfactory test.

Improver for Turnips I applied in two ways—by ploughing in and by harrowing in. I also tried it mixed with farmyard manure, and by itself. The half acre I ploughed in was one-half Improver mixed, and other half unmixed. The result is contrary to my expectation. I have a splendid lot of Carter's Early Jersey Lily all over, but they are better where no farmyard manure was applied. The tops are singularly small, but with fine Turnips beneath. They are all a garden Turnip should be for quality. Where I harrowed the Improver in without farmyard manure the tops are larger, the Turnips fine, and they decidedly grew much quicker. I give the preference to ploughing-in rather than harrowing when the season is not late.

Complete manure for Cabbages I ploughed-in, and planted Savoys, Brussels Sprouts, and Broccoli. I am much pleased with the results. They all look well; and although some of the Brussels Sprouts were planted as late as the 12th of July, yet I find there are some sprouts fit to pick now (October 16th). The manure seemed to push them on at an early date after planting.

In conclusion I may say that I should judge that if the Improver were mixed with farmyard manure and applied to Potatoes at time of planting the results would be satisfactory, judging from my imperfect trial. For Turnips I think very highly of the Improver. For Brussels Sprouts and the Cabbage family I think the manure excellent. This manure, I may add, I applied to one side of a bed of Onions, and native guano to the other side. The produce from the Crown Manure was far the heavier. You will observe I tried two classes of Improvers and one complete manure.—H. S. E., *Great Totham*.

POTATOES.—I have tried nearly forty varieties of Potatoes this year, and of these only twelve have satisfied me, and they are as follows:—St. Patrick, good cropper, free from disease; Wormleighton's Seedling, similar; White Elephant, great cropper, but diseased; Beauty of Hebron, excellent in all respects; Veitch's Ashleaf, good cropper and good quality; Wiltshire Snowflake, the best of all; Peerless Rose, handsome, good cropper; Vicar of Laleham, similar qualities; Improved Peachblow, great cropper; Trophy, very handsome, good cropper; Dalmahoy, best-flavoured Potato grown, and good cropper; Holborn Favourite, great cropper. Of these twelve I

prefer as an early Veitch's Ashleaf; medium, Wiltshire Snowflake and Dalmahoy; late, Wormleighton's Seedling. Beauty of Hebron, early, can well be added to these.—H. S. E., *Great Totham*.

"THE BLACK DAHLIA."

LIKE some other popular names the above has the merit of simplicity, and but for the fact that the plant to which it is applied is not a Dahlia, and the flowers are not black, it would be as suitable a designation as any other. It is true that the title botanists have honoured the plant with has not the first-mentioned merit, and doubtless there are some to whom *Cosmos diversifolius atrosanguineus* would appear almost as formidable as certain



Fig. 62.—*Cosmos diversifolius* var. *atrosanguineus*.

Mexican or Aztec names which so freely abound in unpronounceable combinations of consonants. Perhaps, therefore, as a kind of compromise between the correct and the incorrect, the few syllables and the many, "the Black Cosmos" might be suggested as a desirable equivalent or substitute for Black Dahlia.

Before, however, this can be considered as settled satisfactorily it will be necessary to explain how the title Dahlia was first applied to this plant and why it is incorrect. Mr. W. Taylor, in the last issue of this Journal, quaintly remarked that "aliases in the plant world are generally indications of merit, and convey altogether a different impression to aliases borne by men and women;" and if this be true our little Cosmos has an additional

recommendation in the fact that it has also other names besides those given above, such as *Bidens atrosanguinea* and *Dahlia Zimapani*, under which it is seen in several English gardens and nurseries. In reference to the latter Mr. W. Thompson of Ipswich writes—"Dahlia Zimapani was introduced by the collector Benedict Roezl, who gave the plant that name. I believe I sent it to the late Sir William Hooker for figuring in the 'Botanical Magazine' (tab. 5227, January 1st, 1861), but to the best of my recollection the seed came into my hands from one of the continental seedsmen about the year 1860. It is certainly close enough in external appearance to the Dahlias to excuse Roezl and others for having associated it with them; but I suppose the authority of such a botanist as Sir W. Hooker is not to be gainsaid."

Such in brief is the origin of the name, and the excuse urged above—i.e., the general external resemblance to Dahlias, is quite sufficient; for, taking the *D. glabrata*, *D. Merckii*, and *D. gracilis* type, there is little to distinguish them on casual observation from the *Cosmos*. They are dwarf, with pinnately divided foliage, slender, tuberous, fascicled or bunched roots, and their flowers are borne on long slender peduncles, in all of which characters the *Cosmos* closely resembles them. The chief difference is in the involucre (the calyx-like green bracts surrounding the ray florets), which in the *Dahlia* consists of two series, the outer usually consisting of five bracts, strongly reflexed, dark green, and of thicker texture than the inner series, which closely surround the ray florets and consist of about eight thinner and lighter green bracts. The same portion of the flower in the *Cosmos* is also in two series—five bracts in the outer not reflexed, and eight in the inner—but of similar texture, both closely surrounding the ray florets, the inner series being slightly coloured like the florets. There are some other differences in the florets themselves, but they need not be repeated here. The foliage is of thicker texture and much less succulent than that of Dahlias. It, moreover, has a totally distinct taste, and though this cannot be considered as possessing much weight as a botanical character it is important in another respect—namely, it is obnoxious to slugs; and Mr. H. Cannell of Swanley, who has a large number of plants, states that he has never found one leaf injured by those pests—conclusive evidence, in his opinion, that it is not a Dahlia.

Having thus disposed of the nomenclature, the value of the plant as an occupant of our gardens may be briefly referred to. It cannot claim a high place for brilliancy of colouring, as its rich velvety maroon flowers are only seen to the best advantage when in contrast with the lighter or brighter flowers of its congeners, the single Dahlias, or similar dwarf plants. There is a peculiar richness of tint, however, that is very pleasing, and when associated with other flowers, as hinted, it has a striking effect. The long peduncles also admirably fit it for cutting, and the blooms continue fresh for several days in water. It succeeds well under similar treatment to the Dahlias, lifting the tubers in autumn and storing them in a dry cool place safe from frost; or if the roots are allowed to remain in the ground during winter, which, however, is scarcely a safe course, they must be amply protected with a covering of ashes, litter, or similar material.

It may be observed that the species (*C. diversifolius*) of which this is a variety, was described by Otto in Knowle's and Westcott's "Floral Cabinet" some years ago, but it has smaller flowers than the variety, of a rosy lilac colour not unlike *Anemone japonica*, the roots being tuberous as in the one now described. Another perennial *Cosmos* is known in gardens—viz., *C. scabiosoides*; but *C. bipinnatus*, figured in this Journal, page 265, September 21st of the present year, is an annual, and quite distinct from these, though Mr. F. W. Burbidge, usually so correct, appears to consider *C. bipinnatus* and *C. diversifolius* as synonymous.—L. CASTLE.

WOODS, FORESTS, AND LAND REVENUES.—The sixtieth report of the Commissioners of Her Majesty's Woods, Forests, and Land Revenues has been recently issued. In the past year, ended on March 3rd last, the gross sum that was credited as received from the rents and royalties, and the "thinnings of the plantations of the property," amounted to £346,560; but from that amount there have to be deducted various sums that were allowed to tenants, principally in consideration of the losses sustained by them from a succession of adverse seasons during the past six years. These allowances amounted to £20,652 17s. 10d.—equal to 21 per cent. on the rental. The report proceeds: "For the same purpose of assisting the tenants, and in order to enable them to cultivate their farms to the best advantage to themselves, nearly £130,000 have been expended by the Crown in the past six years in under-drainage and in the construction and enlargement of farmhouses and farm buildings and cottages, and in other works of permanent improvement of the land in my charge. In the past year the sum of £23,237 9s. 5d. was expended in works of that description and in repairs. The proportion of that sum which was expended in works falling under the definition of the

'Improvement of Land,' within the meaning of the Improvement of Land Act, 1864, amounts to £16,723 10s. 4d. The sum was paid out of capital in pursuance of the Land Revenue Acts, which provide that the cost of such works shall be charged to capital and be repayable by instalments out of income. The residue of the outlay, amounting to £6513 19s. 1d., was paid out of income."

THE ROSE ELECTION.

It may interest some of the readers of "our Journal" to compare the results of the present election with the matured judgment of the first rosarian in America, Mr. H. B. Ellwanger, a gentleman to whom I feel most deeply indebted; for in the earlier elections, when as yet the ages and raisers of the different varieties remained in cloudland, when mystery shrouded these interesting data, Mr. Ellwanger, unknown to me even by name, and therefore quite unsolicited, wrote from America, filling up many of the gaps in these columns, whilst from the pages of his catalogues I have learnt more on these points than from any of our English growers, excepting our old and departed friend the Rev. W. F. Radclyffe.

Few can appreciate the difficulty on these points in the earlier elections. Now that we have the catalogue of the National Rose Society the difficulty has comparatively speaking disappeared; but I desire to give honour where it is due, and the catalogue of Messrs. Ellwanger & Barry was, in this respect at any rate, an example to our own growers and an unvarying help to myself.

As the great authority on Roses and Rose-growing in America, I have thought that the contrast between the two lists might prove of some value.

THE ELECTION LIST.

1. Marie Baumann.
2. A. K. Williams.
3. Alfred Colomb.
4. La France.
5. Baronne de Rothschild.
6. Charles Lefebvre.
7. Marquise de Castellane.
8. Duke of Edinburgh.
9. Etienne Levet.
10. Marie Rady.
11. Capitaine Christy.
12. Louis Van Houtte.
13. Dr. Andry.
14. Ferdinand de Lesseps.
15. François Miehelen.
16. Madame V. Verdier.
17. Marie Finger.
18. Comtesse d'Oxford.
19. Mons. E. Y. Teas.
20. Madame G. Luizet.
21. Horace Vernet.
22. Sénateur de Vaisse.
23. Dupuy Jamain.
24. Marguerite de St. Amand.
25. Duke of Wellington.
26. Xavier Olibo.
27. Beauty of Waltham.
28. Annie Wood.
29. Duchess of Bedford.
30. Comtesse de Serenye.
31. Camille Bernardin.
32. Reynolds Hole.
33. Duchesse de Vallambrosa.
34. Prince C. de Rohan.
35. Star of Waltham.
36. Le Havre.
37. Fisher Holmes.
38. Countess of Rosebery.
39. Marie Verdier.
40. Abel Carrière.
41. Victor Verdier.
42. Pierre Notting.
43. Duchesse de Morny.
44. John Hopper.
45. Charles Darwin.
46. Duke of Teek.
47. Madame Laeharme.
48. John S. Mill.

MR. ELLWANGER'S LIST.

1. La France.
2. Alfred Colomb.
3. Marie Baumann.
4. Madame Gab. Luizet.
5. Baronne de Rothschild.
6. Marie Rady.
7. Mlle. Eugénie Verdier.
8. Louis Van Houtte.
9. Horace Vernet.
10. Xavier Olibo.
11. Pierre Notting.
12. Capitaine Christy.
13. Madame V. Verdier.
14. Mons. E. Y. Teas.
15. Marquise de Castellane.
16. Baron de Bonstetten.
17. Abel Carrière.
18. Jean Liabaud.
19. Alfred K. Williams.
20. John Hopper.
21. Comtesse de Serenye.
22. Fisher Holmes.
23. Annie Wood.
24. Charles Lefebvre.
25. Eliza Boëlle.
26. Prince C. de Rohan.
27. Beauty of Waltham.
28. Rev. J. B. Camin.
29. Charles Margottin.
30. Comtesse C. de Chabillant.
31. Countess of Rosebery.
32. Comtesse d'Oxford.
33. Egeria.
34. François Miehelen.
35. Etienne Levet.
36. Maurice Bernardin.
37. Paul Neyron.
38. Victor Verdier.
39. Jean Soupert.
40. Mlle. Thérèse Levet.
41. Prince de Portia.
42. Boieldieu.
43. Helen Paul.
44. Gaston Levêque.
45. Mons. Noman.
46. Marguerite de St. Amand.
47. Abel Grand.
48. Hippolyte Jamain.

The comparison of these two lists is not without interest. It appears to me that the pronounced colours, whether very light or very dark, do better in America than in the old country. Our new acquisition of 1877, Madame Gabriel Luizet, stands very high; and La France, Eugénie Verdier, and Comtesse de Serenye all stand higher, as do amongst the darks Horace Vernet, Xavier Olibo, Pierre Notting, all these being in the first dozen, and in the second we find Baron de Bonstetten and Jean Liabaud, the former not named in our seventy-five, and the latter actually seventy-fifth. Baronne de Rothschild and Beauty of Waltham stand respectively Nos. 5 and 27 in each list, whilst most of us will wonder at the low position of Charles Lefebvre, perhaps our most constantly good dark Rose, which rarely burns as so many of the

darker do with us. I say *burn*; but though this describes the appearance, it certainly is not caused through burning as by the sun, for very frequently on sunless days this failing is more noticeable.

I also draw attention to the position of A. K. Williams and Madame G. Luizet. These two Roses almost exactly change their relative places in the two lists. Evidently A. K. Williams is not so highly esteemed in America, and since the publication of the first portion of this election I have received a letter from a gentleman in which the following passages occur:—"Since you mention A. K. Williams I cannot resist giving you my experience this season. I had between thirty and forty plants on Briar and Manetti, maidens and cutbacks. Eleven of them died right out in April, though they had shot strongly before, being pruned in March. Off the remainder I cut but one moderate show bloom all the season. They are well 'done by,' but made very weak growth. I think there was something in the season did not suit it. All Rose-growers in this county (Suffolk) were equally lamenting it." My experience, I confess, leans to the same view—plants have died so far as I could discover without any reason.

Of Helen Paul and Gaston Levêque, two Roses that are included in Mr. Ellwanger's second twenty-four, no mention was made by any one of the sixty-six voters in this country; the catalogue character of the former is excellent.

Let me now compare the two lists of Teas and Noisettes.

THE ELECTION LIST.

1. Catherine Mermet.
2. Maréchal Niel.
3. Souvenir d'un Ami.
4. Marie Van Houtte.
5. Souvenir d'Elise.
6. Devoniensis.
7. Madame Lambard.
8. Niphotos.
9. Madame Bravy.
10. Jean Ducher.
11. Perle des Jardins.
12. Rubens.
13. Belle Lyonnaise.
14. Souvenir de P. Neyron.
15. Comtesse de Nadaillac.
16. Madame Willermoz.
17. Anna Ollivier.
18. Innocente Pirola.
19. Madame Caroline Kuster.
20. Gloire de Dijon.

MR. ELLWANGER'S LIST.

1. Maréchal Niel.
2. Catherine Mermet.
3. Marie Van Houtte.
4. Madame Bravy.
5. Madame Lambard.
6. Rubens.
7. Etoile de Lyon.
8. Perle des Jardins.
9. Marie Guillot.
10. Comtesse de Nadaillac.
11. Marie Berton.
12. Madame Angela Jacquier.
13. Cornelia Cook.
14. Niphotos.
15. Souvenir d'un Ami.
16. Devoniensis.
17. Sombreuil.
18. Jean Ducher.
19. La Princesse Vera.
20. Madame Welshe.

The American list contains two Roses that I do not find in most of our English catalogues. No. 13, Cornelia Cook, thus described by Mr. Ellwanger:—"Cornelia Cook (Anthony Cook, 1855), a seedling from Devoniensis, pale yellowish white, sometimes tinged with flesh; flowers very large and very full, not a free bloomer, and often does not open well, but a superb Rose when well grown." The other, No. 19, La Princesse Vera, is a new Rose "(Nabonnand, 1878), creamy white bordered with coppery yellow, pretty buds."

Mr. Ellwanger has just published a new book on the queen of flowers entitled "The Rose." It is comprehensive, for it gives a list of 956 varieties, the date of origin, and name of raiser. It appears also to treat the subject fully, including the diseases and insects of the Rose. On the latter point most of us need enlightening, especially ordinary gardeners, who are only too ready to apply finger and thumb to any insects, forgetting, or more probably having never learnt, that many of the insects on the Rose are our best friends; and here I rejoice to see in Mr. Farren's (of How House Nurseries, Cambridge) catalogue additions on these matters. They will well repay perusal. Possibly he has scarcely drawn sufficient attention to the very pointed head of the larvæ of the syrphidæ, our greatest allies. The heads of all other grubs and maggots that eat the Rose are rounded or squarish, and the head is generally shiny and distinguishable from the rest of the body of the grub. Not so that of these most useful little creatures; it is roughly pointed, not distinguishable as a head. These untiring devourers of the green or black fly cannot be too universally known and recognised. They, with the larvæ of the ladybird and lace-winged flies which may escape destruction, being unlike grubs, are our most devoted slaves. It is a pity they so often receive the treatment meted out to our enemies.—JOSEPH HINTON, *Warminster*.

STANDEN'S MANURE.—I quite agree with Mr. Irvine in reference to Standen's manure and its effects on plants. I believe if it was more used many difficulties to be contended with in town gardening would be overcome. We all know how injurious town air is to plants, particularly to Roses. To grow these in gardens here is out of the question, surrounded as we are by thousands of habitations; even under glass few will succeed—not one out of ten. For five years I tried to grow Gloire de Dijon in a greenhouse, but failed every year

until the spring of 1881. I that year obtained a plant of the above Rose, and in potting it I used the manure as directed on the canister, quite expecting it to die as the others had done, but was surprised to find it growing vigorously. In July I planted it out, bringing the head inside and mixing with the soil half a 1s. canister of the manure. This spring I cut over two hundred blooms from it, and at the present time it covers over 100 feet of glass.—CHARLES WARING, *Prince's Park, Liverpool*.

RASPBERRY CULTURE.

To have this useful fruit in satisfactory condition good soil is essential. If the natural soil is not suitable it must be prepared. I managed a garden once where every other kind of hardy fruit was grown extensively and well except the Raspberry. The soil was a stiff loam and the cause of failure, so we marked off a piece of ground in an open quarter, and worked in plenty of decayed vegetable matter mixed with lime to make the soil light. The stools were planted, and the same season splendid canes were formed, and a good crop of fruit was obtained from the original canes.

When you are about to plant Raspberries choose an open quarter. If the ground is heavy work in plenty of vegetable refuse. If, on the other hand, it is too light well trench the ground and work in some stable manure. The best month to plant in is November. The rows should be 5 feet apart, and the stools 3 feet apart in the rows. The following February cut the canes down. As to training, the best way is to have a strong post at each end of the row and a wire strained to them, the canes being trained fan shape. When they are established mulch the ground with manure every season, but do not dig it in. It will help to keep the roots moist, besides affording them sustenance, as the Raspberry delights in a moist rich soil. There is another reason why Raspberries do not succeed at some places. They are surface-rooting, and the soil near them should not be dug at any time. In the winter hoe the quarter and remove the loose litter. They do not require very much pruning. After they have done fruiting cut the old fruiting canes away to encourage the suckers for next season, leaving about six to a stool. I do not recommend cutting the tops of the canes unless in the case of a straggler, as much of the crop is lost by doing so. The best varieties are Fastolf, Prince of Wales, and Carters' Prolific. Baumforth's Seedling is also said to be a good variety. Autumnal Raspberries do not bear good fruit on the canes of the preceding season. They should be cut down close to the ground in February and the suckers thinned.—A. YOUNG.

In the majority of gardens autumn Raspberries are almost indispensable, and this autumn they appear to be doing better than usual. The plants of the yellow variety in particular are still carrying a heavy crop of fine fruit, much heavier than the red. We commenced gathering five weeks since, and to all appearance will continue doing so until the frost comes. As is well known, these varieties fruit on the current year's shoots, the old wood being cut away during the winter and the stools well mulched with manure. It is advisable to transplant often, as by so doing much larger fruits are procured, and if done early it does not affect them, and they will carry a good crop of fruit the same year.—G. S.

SEWAGE, SOOT, AND ASHES—A CAUTION.

I HAVE been much interested with the discussion lately carried on in this Journal about benefits obtainable from what may be called home-made manures, such as sewage, soot, and ashes. Sewage both in a liquid and solid state is equal to any of the costly fertilisers in the market. As long as I can remember sewage has been known to me as one of the most beneficial and economical of fertilisers; indeed, it has often been a surprise to me that such a valuable article has been so wasted. "SINGLE-HANDED" and Mr. Taylor are national benefactors in stirring the minds of horticulturists to the benefits derived from its use. There is nothing new about it, but, as in cooking, the average Britisher will not look at the economical part of the subject. Home-made dishes of scraps what our continental friends would make a savoury meal of are thrown away for the large costly joint. So with home-made manures. We shall no doubt in time learn to study the application of those resources that are at hand, and to be had in most cases for the mere trouble, and a careful system of preserving and applying them.

Sewage, soot, and ashes I have always accounted amongst the gardener's best and readiest assistants, so much so that I have since I came here managed to obtain the whole of each for the use of the garden. In doing so I thought myself most fortunate. I used all unsparingly, but in most instances could not

detect the benefit I was led to expect from previous experiences; rather for some time there was not wanting indications that something was not as it should be. What could it be? In whatever way each and all these three articles were applied, and to whatever crops applied to, the results were the same—instead of invigorating the plants it impaired them, and in too many instances totally destroyed whatever they were applied to. I need not say I looked far and wide to account for the cause of this deteriorating and dying-out—Strawberries, Vines, Peach trees, Peas, Cauliflowers, Celery, bulbs, Chrysanthemums, Spiræas, and herbaceous plants. I had used sewage, soot, and ashes since I knew what they were with the best results, which puzzled me the more to account for the disastrous effects. We must bear in mind due care was taken in applying it. I was some time before I could persuade myself that to these I must look to for the mischief that had been done. Was it possible that an enemy was lurking within all three of those useful fertilisers? What could it be? It must be potent, and so it is. We have it in that useful article paraffin. In a large establishment with a number of careless servants this mischief can be done, and has been done, and by what means? I account for it in this way. Gardeners who are about the indoor establishment much cannot help noticing the peculiar liking Mary the housemaid has for the company of a tin can in her rounds to light fires. She is late in getting up, the wood is damp, and the paraffin can will be found to supply the quickest and readiest means of making a fire at once. Again and again have I seen it used the same morning. What is the result? Much of the paraffin falls through to the ashpit, and much again will pass away with the smoke before it is heated enough to burn and lodged in the chimney, and thus it finds its way to the gardens in both ashes and soot. The unlucky gardener is thrown off his guard, and it is well for him if he finds it out before it has done much damage. Truly is it said, "Protect us from our friends, from our enemies we can protect ourselves."

Now how are we to account for it in the sewage? Easily, I think. Go to the pantry in the morning, and you will find James or Charles trimming two or three dozen lamps, and they, too, know not the damage paraffin may do when thrown about carelessly. All refuse from the emptying and cleaning of the many lamps goes into the sink which leads to the sewage tank near the garden. This is one of the many channels. Another can be traced to a drain close to where the paraffin is stored. A can is turned over, the tap is left running too long, washing out the floor of the storehouse, careless tapping the cask, or it may be emptying out just the little that is left in the cask, are some more of the many ways in which it gets to the sewage tank. I once knew a large quantity escape into the drains, some of which leads to a fish pond, and the next morning I remember counting seventy-five dead fish floating on the surface of the water. Much of this, too, I afterwards traced to the sewage tank. All this was arrived at when it was too late, the damage being considerable. Since this I have some difficulty in placing that former confidence in what I thought three of my very best assistants. Still, we must remember that it is really not, after all, either the soot, ashes, or the sewage, but the paraffin that has done the mischief. What we wish to know before we use either is that there is no paraffin in them. I have now such a perfect dread of this oil that I care not to use it as an insecticide; though valuable in some respects, in others I have seen much harm from its use.—JNO. TAYLOR, *Hardwicke Grange*.

MARGUERITES OR PARIS DAISIES.

As this is the time for increasing these plants, a few remarks on their propagation may be useful. Choose the youngest shoots and those without a flower bud. Insert about nine or ten in a 48-size pot. Employ a compost of two parts fibry loam, one part leaf soil, and one part of silver sand, pressed firmly into the pots, with a surface layer of sand three-quarters of an inch deep. They should then be placed in a cold frame with a north aspect, keeping the frame close for a few weeks. The plants may then be transferred to a cool house. The frame should be kept quite close and covered in severe weather. At the beginning of April the young plants should be potted in large 60's and placed in the frame with a south aspect, ventilating as the plants improve. I plant them out in the beds and borders in May and June.—C. STEPHENS, *Lyne Gardens, Horsham*.

VAGARIES OF PLANTS.—I have at present (October 16th) in flower in my small garden *Lilium auratum* with seven large blooms, blue *Hepatica*, *Jasminum nudiflorum*, Christmas Rose just about to flower, *Helleborus lividus* in flower, *Auriculas*, *Laurustinus*, *Primroses*, *Pyrethrum uliginosum* just beginning to flower. In the kitchen garden Strawberries are flowering and bearing a second crop;

Currants against a wall have shed all their leaves a month or more ago, and show buds as if they intend to give a crop about Christmas; Gooseberry trees are the same. Can any of your readers explain why some plants are so premature and some so backward this year?—G. O. S.

VARIETIES OF PEACHES AND NECTARINES.

LIKE Mr. Iggulden (page 335) I am much interested in the culture of the above-named fruits, and I gladly give my experience on the subject. The soil here is very suitable for Peaches, being a strong holding loam, resting on magnesian limestone. When I say it suits them, I allude to the trees growing freely in it; in fact, too much so if left alone, consequently we have frequent recourse to root-lifting. In fact, we do this more or less annually, otherwise we should seldom have such heavy crops of good fruit as we usually do, especially during the late dull wet summers we have had here for several years. Our borders are both inside and out, and about 3 feet in depth. Were we constructing them now we should limit the depth to 2 feet 6 inches, and restrict the root space to 6 feet inside and about 4 feet outside, having the roots of the trees in the early house all inside. In pruning we make it a rule never to shorten the young wood unless we wish to fill up a vacancy in the lower part of the tree. We thin out all superfluous wood as soon as the fruit is picked, leaving but little to be done at the winter pruning. We have a quantity of shoots on the trees in our early house nearly 3 feet long covered with fruit buds their entire length.

A word now as to varieties. Our best and surest cropping variety in the early house is Royal George. The tree entirely covers a trellis space of 18 feet by 14 feet. Next to it is a tree of A Bec equally large. This is a splendid Peach as to size, colour, and flavour, but withers, and is a shy cropper. It usually loses quite one-half its flower buds, not in the usual way of dropping off, but they appear to shrivel and never open. Were we planting now we should plant it in a second house. Our next tree is an Elruge Nectarine, which usually bears good crops of fine fruit. We have not tried Lord Napier Nectarine under glass, but have a fine young tree on a wall. While on the subject of early Peaches I would just mention that Mr. Iggulden's remark respecting there being two varieties of Hales' Early is, I fear, only too true. We have on a wall a tree procured from a source where fruit trees are usually kept true to name that ripened a few fruits this year, but they were quite a fortnight later than Pine Apple Nectarine and Red Nectarine Peach growing on the same wall, so that ours cannot be the true variety. I have grown several varieties of the small-fruited early Peaches, but do not think them worth the room under glass. We have a good tree of Early Beatrice on a low south wall that ripened a fine crop of fruit this season. They were ripe the last week in July. In an early Peach house a few miles from here there is a tree of Early Victoria that has ripened fine crops of fair-sized fruit each year for the past eight years to my knowledge. It comes in fully three weeks sooner than Bellegarde in the same house, the latter being at the warmest end of the house too. Had we a vacancy in our early Peach house I should certainly plant a tree of Victoria to come in before Royal George. I believe it was originally sent out by Mr. Rivers of Sawbridgeworth. The tree I allude to came from that source.

In our second house we have four trees of as many varieties—viz., Belle Bauce, Grosse Mignonne, and Goshawk Peaches, and Violette Hâtive Nectarine. The first-named is a very fine Peach and a good cropping variety, its only fault being that it ripens about the same time as Grosse Mignonne, consequently we have not such a long succession of fruits as if we had either Bellegarde or Barrington in its place. Belle Bauce has ripened sixteen dozen fruits for several years in succession, many of them 7 ozs. each. Grosse Mignonne is in my opinion the finest midseason Peach we have, and I have grown it and seen it growing in four different gardens in as many counties and always giving satisfaction. Our own tree here has never produced less than twelve dozen fruits, and frequently more, for the past ten years, many of them half a pound each. Goshawk is growing on the back wall, consequently has not such a good chance as the rest, as all our trellises run parallel with and about 18 inches from the glass all up the roof; still, what few fruits we have had have been good, and we should not hesitate to plant it as a permanent tree had we a vacancy. Violette Hâtive Nectarine is too well known as a good standard sort to require any further remark than that it keeps up its well-known character with us.

In our late house we have two trees of Bellegarde Peach and a Balgowan Nectarine. The Peaches were, I believe, planted as Violette Hâtive and Bellegarde, but I cannot see the slightest difference either in fruit or foliage. They are fine Peaches, both

of them. Balgowan is a good late Nectarine, but were we planting now we would plant Pine Apple instead, as being rather later and larger. A tree of this latter variety on a south wall ripened a few good-sized fruits this year. The colour and flavour were fine. Our surest cropping tree on walls is an old one of Walburton Admirable, which I think a very good late Peach. Late Admirable is a fine-looking Peach, but scarcely ever worth eating either indoors or out, which in my opinion is the most important point in Peaches. Before concluding I wish to draw your readers' attention to a Peach I have already mentioned—viz., Red Nectarine. It is a hardy variety. The fruit is of a fine size and colour and splendid flavour both under glass and outside. It is not included in many catalogues; in fact the only place I have seen it mentioned, and from whence all the trees of it that have come under my notice have been procured, is the fruit catalogue of the Messrs. Veitch, Royal Exotic Nursery, Chelsea, where it is described as a new Syrian variety of great excellence.—H. J. CLAYTON, *Grimston*.

THREE USEFUL PLANTS.

GLADIOLUS COLVILLI ALBUS.

WHERE choice white flowers are in demand during May and June the above should be grown. To have a succession the bulbs should be potted from now until Christmas. The earliest could be grown in pots for the conservatory, and the later ones planted out in the borders in April, where they will soon commence blooming. Place about eight bulbs in a 48-pot, and keep them in a cold frame during the winter. I have never forced them, but when the flower spikes are showing I should think they would force well. It would be worth trying. This Gladiolus should be grown by everyone having a garden, and it is very cheap.

TRITELEIA UNIFLORA.

This is a pretty little bulbous plant. It is generally grown in the border, but it is very useful in pots. Place about twelve bulbs in a 48, and treat similarly to Crocuses, introducing a few pots at a time into an intermediate temperature.

SCHIZOSTYLIS COCCINEA.

This bulbous plant is generally planted out in the open and potted in September; but I find the best plan is after the plants have bloomed to place them in a cold frame until the spring, then turn them out and select the strongest plants, arrange them in 16-size pots about 2 inches apart, and stand them in the open until this time of the year, then place them in a cool house. When the flower spikes appear assist them with liquid manure.—X.

FRUIT-JUDGING AT EDINBURGH.

"THE Judges did award the first prize to the undoubted best twelve bunches" of Grapes "in competition" at the above Show, so writes the winner of the said prize. Now who ever heard a competitor express a doubt of the correctness of a decision that conferred upon him the distinction of being the winner of a first prize? It is, however, somewhat unusual for the person in whose favour a decision is given to be the first to come forward as a defender of it when its correctness is disputed by outsiders. The person most benefited cannot be admitted as an arbitrator in the case. Still, as he has thought proper to compare his own productions with those of his "respected brethren," I may be permitted to say a few words in reply.

Where, as at Edinburgh, a prize is offered for the best twelve bunches of Grapes, six varieties, two bunches of each, Mr. MacIndoe says "in cases like this it requires something more than simply the best varieties ripe and fit for table early in September;" and I would ask him to kindly explain what is the "something more" required. Perhaps the word "best" in this case means largest, and has no reference to variety, ripeness, or finish. If this is the meaning intended, then the sooner it is understood so by exhibitors of Grapes the better. This will simplify matters very much, as it will reduce the number of competitors to the few whose employers prefer as dessert fruit large bunches of coarse ill-flavoured sorts to the more symmetrical smaller bunches of the superior flavoured varieties.

About the twelve dishes of fruit. Mr. MacIndoe admits "that Charlotte Rothschild Pine Apple in the first-prize lot had a few green streaks round some of the pips," the fact, however, being that all the pips from top to bottom had a few green streaks round them. I noticed "the Queen Pine at the other end of the collection," which was, as Mr. MacIndoe describes it, "as perfectly finished as any Pine in the Show."

Mr. MacIndoe particularly refers to the three bunches of Muscat

of Alexandria Grapes as being small in the third-prize collection. True, they were small in bunch as compared with the bunch of Trebbiano in the first-prize lot, but they were of good average size both in bunch and berry for the variety, and they were ripe and fit to eat, whereas if the unripe berries had been removed from the Trebbiano more wool in the way of padding would have been required to make the bunch appear presentable than was employed in the case of the Muscats.

Then as regards the black Grapes in the first and third-prize collections. The latter contained a dish, three bunches, of finely finished Madresfield Court, and the former a dish, one bunch, of partially ripe Gros Guillaume. True, the one bunch of Gros Guillaume was of greater weight than the three bunches of Madresfield Court; but then, as a dish of dessert fruit the latter was much superior to the former. Mr. MacIndoe is mistaken if he supposes I "fancied" that the first-prize lot should have occupied the third place. The fact is, there were only nine dishes of fruit in the first-prize lot ripe enough to include in a first-class dessert, and therefore in my opinion—and I am not alone in this—it was not in the race from the first.—H. B.



THE storm of TUESDAY THE 25TH INSTANT, which was so violent in many parts of the country, was also very destructive in London and the metropolitan district. Suburban florists and market gardeners have sustained much loss by the breakage of glass. Trees have been battered and broken to a serious extent, and Dablias and similar tall plants in gardens have been swept off the ground. A driving rain prevailed, with sleet at times; but no snow fell as in some of the midland and northern counties. The hurricane subsided as suddenly as it commenced, and the evening was perfectly calm. The temperature is much lower, and it will be unwise to delay making everything safe in gardens for the winter. The first frosts, because coming suddenly and unexpectedly, are not unfrequently the most destructive.

— THE annual EXHIBITION OF CHRYSANTHEMUMS IN THE INNER TEMPLE GARDENS will be opened to the public to-day (Thursday), the plants being arranged as they were last year in a glass erection near the Thames Embankment, where there is a very convenient entrance for visitors. The plants are in good condition, healthy and strong, buds being plentiful, and a number of early flowers are fully expanded, so that there is already a display of some interest. A very important feature this year is the number of new varieties, chiefly of the Japanese section, represented in the collection, and some of these appear to possess considerable merit as far as can be judged at present. The majority have been recently sent out by Messrs. J. Veitch & Sons, Chelsea, and were raised by Mr. Salter. Very noticeable is Lord Beaconsfield, with flat florets of a rich bright red colour on the upper surface and yellow bronze below. La Charmeuse, of a fine crimson hue, is also good; L'Île de Plaisir, orange yellow; Reverie, deep red; Curiosity, yellow tipped with bronze; Dr. Macary, rosy tint; Mary Major, white; Rex Rubrorum, deep red; and others are similarly noteworthy, but will be more readily judged when their characters are fully developed. The best of the older varieties are included in the collection, such well-known favourites as Elaine, Mrs. G. Rundle, Empress of India, and Mrs. Dixon being very promising. With fine weather the interest of the display will now increase daily, and in a week to a fortnight's time will probably be at its best.

— A MAIDSTONE correspondent, "F. O. M.," sends us the following:—"In accordance with your request on page 375 of the Journal for records of HEAVIEST PEARS, I inform you that on a tree six years old of Pitmaston Duchess, brought from Messrs.

Rivers, I picked twenty fruit, the heaviest of which weighed 1 lb. 6 ozs. There was little difference in the rest, but the first six selected as apparently heaviest we found of the weight stated. The fruit is now ripe and of excellent quality for dessert."

— A CORRESPONDENT informs us that "the tenth DURHAM FLORAL AND INDUSTRIAL EXHIBITION was held in the Town Hall and New Market, Durham, on Tuesday and Wednesday, the 17th and 18th of October. The greater part of the Show is devoted to industrial exhibits. The plants and cut flowers were generally inferior to previous years, but the vegetables in all classes were as good as they generally are in the north. The Hon. Sec., Mr. Graham Forster, and his assistant, Mr. Hutchinson, were indefatigable in their exertions in making the Show a success."

— AN experienced Fern-grower states that he has just succeeded in raising some young plants from spores of *TRICHOMANES RADICANS*, which he believes to be the first time this has been accomplished in cultivation. Prothallia have been previously obtained, and some of these lived for five years, then dying without producing fronds. The present batch is six years old, and the prothallia have only recently produced the characteristic fronds of the species, which are at present very small.

— WE learn from an American contemporary that the Georgia Horticultural Society condemns the practice of "RINGING" VINES as "not legitimate Grape culture," and will decline to take official notice of show bunches at their exhibition made unnaturally large by this process "to the injury of the Vine," and with the effect of "deceiving the public." The practice thus condemned seems to be very general in that State, but British gardeners contrive to produce excellent Grapes without resorting to such proceedings.

— A CORRESPONDENT writes that "at a meeting of the SALE BOTANICAL SOCIETY, held recently under the presidency of Mr. F. J. Broome, some time was spent in discussing the uses of bees in the fructification of plants and changing of colours in flowers, a number of specimens of plants or flowers being shown. It was incidentally mentioned that the single white Dahlia called the Queen, now so much in favour amongst florists, was grown in Bowdon forty years ago."

— GLASS structures in gardens are often profitably employed for mixed crops, but the practice of rearing PEACHES AND SALMON in the same house, as adopted at Culzean Castle and described in another column, is new to us. We have seen Grapes and early chickens grown in the same house and both profitably, but have not before heard of the method of rearing salmon in a Peach house. The practice described is worthy of record, and the system of trial in districts adapted for the increase of salmon in the rivers.

— WE have received few records of FULL CROPS OF APPLES this year, but the following extract from a letter from Lincolnshire shows that all orchards are not destitute of fruit:—"Sturmer Pippin has been the only failure this year, trees of almost all other sorts bearing great crops. Norfolk Bearer, King of the Pippins and some others we have had to prop to prevent the branches from breaking with their load of fruit. The trees, which are old, have each had about 65 gallons of liquid manure from a tank poured over their roots three or four times a year, and this, with thinning out the weak and dying wood, has greatly increased the quantity of fruit and improved the quality. The soil is strong and shallow, resting on limestone, and the position is dry."

— BOTANISTS will learn with satisfaction that the Cavaliere d'Amico has succeeded, not without considerable difficulty, in acclimatising a number of foreign plants in Sicily. They are being exhibited at the present time at the Agricultural Exhibition of Messina, and excite a great deal of interest among the

spectators. Amongst them are the Tea plant, *Persea gratissima*, *Cinchona succirubra*, *Indigofera tinctoria*, and *Myrica cerifera*. Cav. d'Amico intends to establish a Tea plantation of some extent not far from Messina, and it is hoped that Sicilian tea may in a few years become an important article of commerce.—(*Nature*.)

— FLOWER BEDS AND LOBSTER SALAD are not linked together in the ordinary style of describing the London parks, but there are writers in London equal to all emergencies. One of them remarks in a daily paper:—

"Few improvements have more completely justified their name than Battersea Park. With a lake of its own and the broad river flowing in its front, with picturesque Chelsea opposite, it is, now that the trees have grown, one of the prettiest places in London. Moreover, it has the precious adjunct of a subtropical garden full of forms strange and pleasing to the eye, hardy Palms and Aloes, and queer-looking plants not unlike a trophy of green bayonets, and suggesting anything but the idea of repose. Very little space is lost in the ornamental and subtropical garden. Persons whose taste tends in that direction cannot fail to admire the curious shapes and combinations of colour to which the bedding-out plants lend themselves. Varieties of Stonecrop and Houseleek make pretty enough designs in the opinion of many. They have at least the merit of being appetising, if one may judge by the remarks of a thoughtful gastronome, who compares some of the said beds to lobster salad and others to the rich combination of colour and symmetry found only in a dressed crab."

— A PLANT of *BARBACENIA PURPUREA* is now flowering in the Begonia house at Kew, and its beauty well merits all that was said in its praise by our correspondent "D." in the issue of this Journal, March 16th of the present year, page 219, when also figures were given of *B. purpurea* and *B. Rogieri*. It was then remarked that the former species is not in cultivation at the present time; it will, therefore, be satisfactory to "D." to know that it is included in the Kew collection, where so many beautiful old plants have been preserved. The flowers are of moderate size and of the richest velvety violet purple colour imaginable, the leaves being narrow, long, and drooping, something in the way of *Pandanus graminifolius*. The woodcut mentioned above well portrays the principal characters.

— A SUCCESSFUL cultivator and exhibitor of Grapes has conveyed to us his impressions of the VINES AT LONGLEAT. "I have seen," he says, "the best Grapes that have been exhibited in and near London for several years, but never saw Muscats with such large berries and so well finished as those in the vinery in question, but I have seen larger bunches; the crop, however, is splendid—so regular and so fine. Mrs. Pince's Muscat far exceeds anything that has ever come under my notice, and I doubt if such bunches have ever been produced. They range from 3 lbs. to 5 lbs. in weight, full and symmetrical, while the berries are coloured quite through the bunches as well as it is possible for Grapes to be. The Alicantes are superbly finished, but the Black Hamburg were all cut. The effects of the manure which Mr. Taylor has recommended are most marked, and he is fully justified in what he has stated relative to its superiority, the Grapes where the border was dressed with it being decidedly finer than those produced with the aid of a different fertiliser. I shall hope to visit Longleat again next year, and if the journey were a hundred miles further than it is I should not consider it a long one to see such a remarkable example of Grape culture, apart from the excellent practice that is visible in other departments of the gardens."

— A MEETING of the ROYAL CALEDONIAN HORTICULTURAL SOCIETY was held last Friday in Edinburgh, for the purpose of hearing a financial report by Mr. P. Neill Fraser, the Treasurer, in regard to the recent International Show held under the auspices of the Society. Mr. Syme presided. It appeared from the statement in question that the amount drawn at the gates during the two days of the Show was £1106 11s., a sum which represented 26,250 persons who passed the gates. This number, however, did not include ticket-holders, who, it was estimated, would make up

the total numbers of visitors to 30,760. A sum of £393 16s. had been obtained in subscriptions, which would make up the total receipts in connection with the Show to £1500 7s. The expenses, including the rent of the Waverley Market, Judges' expenses, cost of musical band, &c., amounted to £551 7s. 10d., which, added to £800 1s. 6d. that had already been paid in prizes, brought up the expenditure to £1351 9s. 4d. A comparative statement was submitted, showing that the total income of the International Show in 1875 was £1029, and that there was a loss on that occasion of £89; whereas this year, after paying all expenses, they expected that there would be a balance in favour of the Society of about £70. The probable surplus in the Society's finances at the end of the year would be £350, which would make the total amount at the credit of the Society about £1000. The statement was approved of, and a vote of thanks accorded to Mr. Fraser. The meeting then proceeded to vote various sums to exhibitors at the Show. A vote of thanks and an honorarium of 30 guineas were granted to Mr. Young, Assistant Secretary, whose exertions were stated to have contributed in no small degree to the success of the affair. Votes of thanks were also passed to the Lord Provost and Magistrates for opening the Show and otherwise countenancing it, and to Mr. Stewart, the Secretary, for his services.

— A CORRESPONDENT sends us the following NOTES ON DAHLIAS:—"At the Uplands, near Liverpool, all the new varieties that appear are tried, and the gardens under Mr. W. Woodfield's charge are brilliant with these fine autumn flowers. White Bedder is grand for bedding, the flowers being of the purest white, and in growth does not exceed 2 feet. Hender's Double Floret, or Hose-in-hose Dahlia, is not a very striking variety. Its greatest defect, probably, is its yellowish green centre, which shows very prominently, and the lower florets are gone before the centre expands. D. Juarezii should be grown in every garden. It is rather shy-flowering, but its large scarlet blooms have a very striking appearance. Glare of the Garden, or Fire King, is a gem, and too much cannot be said in its favour, and when well known will undoubtedly be grown in every garden where Dahlias are appreciated. The formation of the flower is Cactus-like in appearance, and we might safely term it a miniature Juarezii. Its flowers are brilliant scarlet, and are produced in abundance; in fact it is one of the most floriferous Dahlias I have yet seen, and for cutting purposes its flowers are unique. This variety massed in quantity in any suitable position would from its compact habit of growth and free disposition to flower produce a grand and imposing effect."

— THE small DOUBLE POMPON DAHLIAS are thus alluded to:—"White Aster is charming, and its pure white flowers of a suitable size for cutting for church or other decoration command for it a foremost place. The following Pompons are also good, distinct, and useful for supplying cut flowers. Triomphe, orange scarlet; German Favourite, white ground tipped with carmine; Pure Love, lilac; Northern Light, red; Osiris, lilac tipped with white; Little Nigger, deep maroon; Little Dear, and Nemesis, maroon crimson, and when tipped with white very beautiful. This marking does not appear constant, and it is only occasionally that properly coloured flowers are produced. However beautiful these forms are, they cannot be compared in my estimation with Glare of the Garden."

— OUR correspondent next refers to SINGLE DAHLIAS:—"Paragon is a lovely variety, but early in the season does not produce its flowers freely with that beautiful shade of purple round the edge of the petals. Towards the close of the season they are produced in large numbers, all displaying their true character. Some seedlings from the above variety Mr. Woodfield pointed out which were very effective, varying from orange scarlet, maroon, to nearly black; while one plant differs only in

having those rich purple stripes down the centre instead of round the edge of the petals as in its parent. All are of a similar habit of growth, and are as free-flowering. Avalanche is one of the single whites, and carries its flowers more erect than White Queen or Alba. Most of the named single forms were flowering freely, as well as many seedling plants, some of the seedling orange scarlets being gorgeous, having flowers of an enormous size. One seedling that flowered for the first time last year, which was noted in these pages, is very striking and distinct from any I have seen growing or exhibited. The ground of the flower is of a primrose colour, which forms a ring round the centre and again towards the outer portion of the petals, while the middle ring is heavily shaded with orange scarlet, the edge of the petals being lightly shaded with the same colour. Its habit of growth is similar to Paragon, and it is free-flowering. Where these plants are arranged in borders in rows this seedling and Paragon would associate well together planted alternately."

— A TELEGRAM to a daily contemporary has the following respecting the WINE-GROWERS' CONGRESS IN SARAGOSSA:—

"The Congress that has been sitting in Saragossa to discuss the best means of combating the phylloxera has been most interesting. Papers have been read which show that the insect has caused extensive ravages in the north of Portugal and the provinces of Estramadura, Malaga, and Catalonia in Spain, despite the severe legislation which enforces the isolation of infested vineyards, the destruction of tainted plants, and other precautions. The opinion of the savants and wine-growers assembled in Saragossa was divided on the question of American wines and on the remedies for the phylloxera. During the Congress some curious statistics were read, which show the vast increase in the culture of Vines that produce the common red and white less fortified wine, on account of the increasing demand for these qualities in France, the north of Europe, South America, and even England. I find that France, since the phylloxera has ravaged half of her vineyards, has imported since 1877 from 87,000,000 to 109,000,000 gallons of Spanish wines, chiefly for her own home consumption. Considering that she only exports to England a little over seven million gallons, and to the rest of Europe and America hardly three times that quantity, what becomes of the argument of Spanish diplomacy, that Spanish wines are mainly imported into France to be re-exported to England, owing to our alcoholic scale of duties? In reality France like England now-a-days imports steadily increasing quantities of light, natural, and less alcoholised wines, red and white, and an annually decreasing quantity of heavier and highly alcoholised sherry and strong wines."

— A CORRESPONDENT of "Vick's Illustrated Magazine" has the following respecting the WHITE PARTRIDGE BERRY (MITCHELLA ALBA), a North American plant allied to the Cinchonas.

"In one of my rambles in the Pine woods in our Canadian wilderness I found a wide plot of this charming evergreen plant, then covered with its white, waxen, double-eyed berries, which shone conspicuously among its darkly-shaded foliage. The fruit and leaves were larger than those of the sister plant, Mitchellia repens, the creeping Partridge Berry of the Indian squaws, with its brilliant red fruit and sweet starry blossoms. On turning to Dr. Asa Gray's manual of the botany of the Northern United States I found no corresponding description of this, to me, new species. The only plant with the name Creeping Snowberry is Chiogenes hispidula, but this is not our White Partridge Berry. I am well acquainted with Gray's plant, Creeping Snowberry, and very pretty it is, forming mats of tiny evergreen leaves and greenish-white flowers, succeeded by small, round, white berries. It is found in black peaty soil in Cedar swamps and boggy shady ground, running over decayed wood and wet mosses. I do not think the fruit of this pretty graceful little creeper is poisonous, but it is flavourless and insipid. It would make a pretty plant for hanging baskets or pots."

SOME USES OF WILLOWS.—An American travelling in England is struck by the frequent occurrence in the landscape of the pollard Willows, the low rounded heads of which in some localities mark the watercourses for long distances. Willows thus treated—for the pollard is not, as sometimes supposed, a distinct kind of Willow—may be occasionally seen in some of our older States, but less frequently than formerly. The White Willow excitement of some twenty years ago was unfortunate, as many farmers, finding that the tree did not bear out the extravagant claims of speculators, became so disgusted with it that they overlooked its real merits. While the White Willow hedge will not be, as claimed, "the universal fence," the White and other Willows may be made most useful, especially to those who live in prairie regions. The question frequently comes

from the West and elsewhere as to the best method of preventing streams from encroaching upon their banks. Lining the banks with a row of Willows is a very ancient practice, and probably there is no better method. Their roots, especially in wet ground, form dense masses of fine fibres, well suited to retain the soil in place. The ease with which such a barrier is established is greatly in its favour. Cuttings of almost any size readily take root. These may be a foot or two long and as thick as one's finger, or they may be large enough for fence posts, according to the readiness with which they can be procured. While the roots are useful for preserving the bank, the tops may be turned to good account to afford fuel or poles for various purposes upon the farm. Another use for Willows is as a wind-break, to shelter the house and farm buildings, as well as to protect orchards and young forest trees from the prevailing winds. When planted for this purpose, as well as along the streams, the tops are made most useful by occasional pollarding. In growing Willows for basket-making the stem reaches barely above the ground, and the shoots are cut every year.—(*American Agriculturist*.)

TWO GOOD ORCHIDS.

Zygopetalum Mackayi.—To gardeners who require a useful plant this Orchid can be freely recommended as one of the best. Ladies are fond of its perfume, and the plant has the very great merit of being easy to grow. Ours are grown amongst Cattleyas, but it succeeds if managed like an ordinary cool stove plant. It is not particular as to compost, as we have it growing in peat, loam, and a mixture of both. Breaks on plants in all three kinds of compost or soils are producing a couple of spikes each. It is a free-rooting plant and requires plenty of root-space. A strong plant with one or two breaks should have a 9 or 10-inch pot. When the pots are too small for the plants one spike from each break is the rule, and very seldom more than one break is produced from a lead, while under liberal treatment more spikes and breaks are common.

Cymbidium Mastersii.—I had some dried-up pieces of this species in 1879, just as they had arrived from India, without roots and with scarcely any foliage. They were at once placed in small pots in a compost of half sand, half soil, being arranged in an ordinary stove. As the pots became filled with roots they were repotted into others 4 inches in diameter in a turfy sandy compost. Some were kept in a stove temperature, others in a cooler compartment in which *Odontoglossums* of the *O. grande* type, Cattleyas, &c., are grown. The cooler system has produced the finest plants. The strongest are now in 9-inch pots, and are producing two and three spikes of their very pretty white flowers. In the larger pots the compost is one consisting chiefly of turf with peat. The roots are very fleshy, and I think that abundant root room is better than keeping the plant too much confined.—B.

THE MANURIAL VALUE OF PHOSPHATE OF MAGNESIA.

It would appear, then, that there is every reason to suppose, judging by their respective solubilities in water (I take Voelcker's determinations, as they appear to be more complete and systematic than any others I am acquainted with), that the following would be the order of the manurial activity of the undermentioned phosphatic substances. Peruvian guano and bone dust have, associated with them, organic matter or salts of ammonia, which, as has been shown, materially increases the solubility of phosphate of lime.

1, Phosphate of lime, as it exists in superphosphates.....	perfectly soluble.
2, Precipitated phosphate of lime	soluble to the extent of 5.56 gr. per gal.
3, Phosphate of lime in Peruvian guano " " "	2.52 "
4, Bone dust, mean of the two extremes " " "	1.59 "
5, Coprolites " " "	0.64 "
6, Estremadura phosphorite.....	" " " 0.10 "

The admixture of organic matter or salts of ammonia, whilst increasing the solubility of Nos. 2, 5, and 6, would probably have a decreasing effect from No. 2 (in which case it is fourfold) downwards.

In the cases of some of the field trials hereafter alluded to the term "retrograde" or "reduced phosphate" is used. It is perhaps therefore necessary to explain that this condition is brought about by the manure in which it occurs losing some of the soluble phosphate which it contained when first manufactured, and which afterwards appears, owing to the tendency of the soluble phosphate to revert to its original condition, as precipitated phosphate, with which it is assumed to have an equal value. The solubility of such reduced phosphate may therefore be taken to be 5.56 grains per gallon (page 361), and with water containing a per-cent. of sal ammoniac, 21.7 grains per gallon. This condition of phosphoric acid was alluded to in the remarks quoted from Sibson (page 317) when speaking of the unsatisfactory system of

valuation followed by many of his brother chemists. I should here, too, allude to another form of phosphoric acid which is sometimes met with—viz., the bibasic phosphate, also an unstable compound, with a strong inclination, if I may so express it, to become ordinary precipitated or tribasic phosphate of lime. Its solubility is, according to Malaguti, $\frac{1}{1000000}$, or 0.07 grain in a gallon; but although so insoluble in water it is soluble to a large extent in aqueous solutions of various salts, of many organic matters, and especially of sal ammoniac. This is of interest, as Otto remarks, since it is probable that this salt is left in the soil by the decay of vegetables. It is also dissolved by chloride of calcium.

Though less soluble in water than the tribasic phosphate of lime, Liebig found it much more soluble than this salt in weak solutions of sulphate of ammonia, common salt, and nitrate of soda; but, perhaps from its tendency to revert to the tribasic phosphate the difference between them need not longer here detain us.

I have now to show that practical field trials bear out the deductions which in this and foregoing letters have been drawn from laboratory experiments and theoretical considerations; and here we have such abundance of materials that it will be best, in order to avoid tediousness, to make a selection of some definite portion of them. The course which appears to be freest from objection will be to take the results of field practice recorded in the abstracts of papers from all countries given in the Journal of the Chemical Society during the last twelve months; but so far as the arguments which have been advanced are concerned, I might equally well have taken any one of the few preceding years during which such experiments have been extensively made.

1. No. ccxxviii., page 1072. At the experimental station of Kiel trials were made with Oats manured with precipitated calcium phosphate, Estremadura superphosphate, steamed bones, and dissolved bones. The superphosphate gave a heavier crop both of corn and straw than the precipitated phosphate, and dissolved bones than the steamed bones. At Renow-Dombrowo in Posen experiments were made with different manures on Potatoes. The soil was about 12 cm. deep, resting on a sandy subsoil, with large stones and marly loam underneath. Part of the manure was ploughed in with a subsoil plough, and the rest applied as top-dressing.

2. The relative yield was as follows: the plots contained each one morgen:—

	Potatoes.
No. 1.—2 centners Chili saltpetre	45 centners.
" 2.—1 " " and 2 centners nitro- phosphate	46 "
" 3.—1 " " and 2 centners bone- black superphosphate	48 "
" 4.—1 " " and 2 centners retro- graded phosphate..	50 "
" 5.—Unmanured deeply cultivated.....	32 "
" 6.—" cultivated in ordinary way	24 "

The result of the retrograded phosphate is, it is observed, remarkable.

3. By M. Maercker, p. 1073. Experiments were tried on Barley, Oats, Peas, Beans, Potatoes, and Beetroot. On the real Barley soils precipitated phosphate appeared to be of equal value with superphosphate, whilst on thin sandy soils the latter appeared to possess a slight advantage. In the case of Oats the results were reversed, as the precipitated phosphate was somewhat superior to superphosphate on sandy soils, and almost equal in value on loam. The experiments on Peas and Beans were so affected by bad weather as to be of no value. The Potatoes were also grown under very unfavourable conditions, but eleven experiments were completed; in these the superiority of precipitated phosphate in the lighter soils and of superphosphate in the heavier was established. In the case of Beetroot no special results were obtained, each form of phosphate having similar effects. On the whole, therefore, precipitated calcium phosphate appeared to give as good results as soluble phosphate, especially in lighter soils; this may be partially owing to the fine state of division of the former, by means of which it could be intimately mixed with the soil.

4. No. ccxxix., p. 1167. By Krockner and H. Grahl. The phosphates used were in the form of retrograde, precipitated, and soluble phosphoric acid and bone meal. They were employed in the proportion of 50 kilos phosphoric acid per hectare. The land consisted of a heavy clay soil well drained, and was sown with Oats, Beetroot, and Potatoes; the phosphates were applied both by themselves and mixed with ammonium sulphate to the extent of 200 kilos per hectare. Where ammonium sulphate was mixed with the manure a considerable increase was observed, especially in the case of the precipitated phosphate and bone meal. Similar differences were observed in the Beet, but not to so large an

extent, and here the soluble phosphate produced larger yields than the other kinds when given by itself or in conjunction with ammonium sulphate, although it proved inferior to bone meal in the first case. The bone meal contained 4 per cent. of nitrogen.

These abstracts of field trials are too numerous to be continued in this letter, and having brought them down to the end of the year 1881 it will be better to defer their completion until next week; but the reader will admit that, so far, the conclusions which I have drawn from theoretical considerations and laboratory experiments are by no means at variance with practical results in the field.—INQUIRER.

CULZEAN CASTLE.

CULZEAN CASTLE in South Ayrshire, the principal residence of the Marquis of Ailsa, is a place possessing great natural attractions and much that is interesting to lovers of horticulture. The Kennedys have long been the dominant family in Carrick, the

southern division of the county of Ayr; and along the stretch of coast extending from the river Doon to the mouth of Loch Ryan, a distance of over thirty miles, are still to be seen ruins of several old castles overhanging the sea, which in olden times were the strongholds of different branches of that family. The Marquis of Ailsa is the head of the Kennedys, and his splendid castle perched above the sea continues the traditional family connection with that rocky coast. The possessors of the title have not in recent times figured prominently in public affairs. They have resided chiefly at home, exercising the prerogative of chieftainship over their extensive estates and amongst their numerous tenantry. The present Marquis is best known as an enthusiastic yachtsman. Not content with the mere handling of craft supplied to him by famous yacht-builders, he has given himself to the study of the lines and proportions of yachts, so as to discover those most conducive to fast sailing; and in order to practically work out his ideas he has erected a yacht-building shop furnished with steam machinery in the vicinity of the Castle, and employs a number of



Fig. 63.—CULZEAN CASTLE.

skilled artificers. The drawings are all furnished by himself, and he spends a portion of each day in the shop when residing at the Castle. A 5-tonner turned out in the shop, named the *Cocker*, has this season beat everything she encountered on the Clyde. Another matter in which the Marquis takes great interest is the artificial breeding of salmon and trout, for which he has fitted up very ingenious apparatus in his grounds. His amiable Marchioness devotes herself to evangelistic and temperance work and to the care of her young family.

We took the opportunity during a recent visit to the north to pay a visit to Culzean Castle. Taking the train to Maybole, an ancient town about nine miles south of Ayr, a drive about three miles along a pleasant road skirted by plantations brought us to the entrance gate, from which an approach of about a mile and a half through richly wooded policies conducts to the Castle. We had not proceeded far till we reached a point where over the sloping foliage we caught a view of the sea away beneath us, its broad expanse, bounded on the opposite side by the island of Arran, fourteen or fifteen miles off, while at a particular point we descried above the tops of the trees, in which it appeared embowered, the upper turrets of the Castle whither we were bound. Many fine prospects were opened up as we gradually descended, and the sea breeze was very refreshing.

The site of the Castle has been finely chosen on a rocky emi-

nence in the centre of a small bay formed by two jutting-out headlands. It is a spacious building flanked by turrets and with battlemented parapets, its northern side resting on the edge of the rock, at the foot of which 100 feet sheer down the sea dashes itself when the tide is full. The outlook from the Castle is magnificent. It catches the island of Arran at an angle in which its noble features are brought into grand relief, while beyond is distinctly seen the Mull of Cantyre, and still further southward on ordinary clear days the north of Ireland. The great pile of Ailsa Craig standing solitary in the expanse of ocean is also seen with singular distinctness; while a continually changing interest is imparted to this noble panorama by the passing steamers and sailing vessels going to and from the busy ports on the Clyde. The natural advantages of the site have been well utilised by those who designed the place; indeed, one cannot fail to be struck with the evidences which exist of the care which successive proprietors must have bestowed by planting, and otherwise to make the artistic belongings of the place bear appropriate relation to its natural amenities.

From the rocky eminence on which the Castle stands the ground tends downwards all round. On the eastern side the crag terminates somewhat abruptly, and an easy access is thus had by a road to the shore beneath. On its western side, and separated from the Castle by a broad sloping lawn, is a battery of small

cannon overlooking the sea with tall flagstaff. One of the guns, fired every morning, gives the correct time as it flashes along a special telegraph wire connecting the Castle with the telegraph office at Maybole. On the south or landward side the ground descends from the wide quadrangle in front of the building by two terraces parallel to the Castle. These terraces are about 150 yards in length, with walls of about 12 and 14 feet in height respectively, the battlemented parapets at the top forming the boundary of the level above. These walls are covered with a variety of choice shrubs and climbers, while the borders at the foot (9 feet wide) are filled with a rich variety of bedding plants. The gravel walks are 12 feet wide, and access from one terrace to the other is provided by flights of steps arranged in keeping with the architectural plan. From the borders along the lower terrace stretches a trimly kept lawn, in the centre of which is a fountain in whose ornamental basin are multitudes of trout disporting themselves.

At the extreme end of the intermediate terrace stands what is called the higher conservatory, the framework of which is of stone rising to about 20 feet in height, of a light and graceful style of masonry in keeping with the architecture of the Castle. We learned from Mr. Murray, his lordship's experienced gardener, that this style of erection was not favourable to the growth of plants. It was filled with large Camellias, Azaleas, and a general collection of greenhouse plants. Some of the Camellias were from 14 to 18 feet high and well set with flower buds. The roof was covered with a good selection of climbing plants, and the stone columns outside were covered with Roses and *Tropæolum speciosum*, the latter doing remarkably well, and covered with seed-like small blue berries. In the lawn in front of the conservatory are some well-arranged flower beds and a good variety of flowering shrubs. Hydrangeas, Fuchsias, and Rhododendrons grow well everywhere about the grounds. A short footpath from there conducts us to the high conservatory, which is filled with a good selection of greenhouse plants in good condition; and in front of this is a neatly laid-out geometrical flower garden, enclosed on the west side by a Laurel hedge, and on the south by large Rhododendrons.

On leaving this we enter the main road which connects the Castle with the kitchen and other gardens. It is a magnificent avenue about 400 yards in length, bounded on either side by rows of Silver Firs, which surpass anything of the kind we have ever seen. As we pass along we notice in an adjoining park a large American ostrich, an emu, a herd of buffaloes, and a collection of Belgian goats, which testify, as do the herds of deer observable elsewhere, to the Marquis's taste for natural history, while the numerous breeding boxes of pheasants show that his lordship does not fail to provide woodland sports for himself and his friends. At the end of this splendid avenue we have referred to stands the entrance to the gardens, which is formed by an arched gateway, near to which is the gardener's house, a commodious dwelling two storeys high.

The garden grounds cover an area in all of 10 or 12 acres. The kitchen garden within the walls contains about 4 acres, and there is nearly an equal extent of cropping ground outside the walls. The flower garden is also of about 3 or 4 acres, and is bounded on one side by a long range of glass houses. The range of Peach houses is 132 feet long by 10 feet wide. The trees are planted in front and trained over the roof at a proper distance from the glass, and portions of the back wall are covered with Roses and Heliotropiums. The fruit had been mostly gathered at the time of our visit; the trees were clean and healthy, and showed signs of high cultivation. We were so much occupied with what is to be seen here that we neglected to note the different varieties grown. This range is utilised in an ingenious way in connection with the artificial breeding of salmon. Throughout its length are placed in direct line a series of oblong boxes covered with lids, rising in successive levels, so that a stream of water entering at the upper level falls successively from level to level until it escapes at the bottom. These boxes are filled with fine gravel, and many ingenious contrivances have been resorted to, to ensure a natural filtration, and that constant movement in the water and disturbances of its surface which observation has shown to be necessary for the successful hatching of ova. The water is brought in pipes from a reservoir in the grounds. The Marquis was guided in a great measure by the advice of the late Frank Buckland, who took a great interest in his experiments. At the proper season 300,000 salmon ova are introduced into the boxes, equally distributed amongst them. For a time the young fish were kept in ponds for a year after they were hatched; but latterly they have been taken at six weeks after hatching, in large cans specially made for the purpose, to the river Doon, some miles distant, and set free there to shift for themselves. There is evidence that the river is better

stocked with salmon since these experiments commenced. In a portion of the grounds about half a mile from the gardens are a series of ponds specially designed for the breeding of Lochleven and other trout. From these ponds the young trout are taken to the Marquis's lochs in the highland districts of Ayrshire, which are known to yield excellent fishing. All the operations in connection with the fish-breeding are under the charge of Mr. Murray.

Adjoining the Peach houses is a range of six vineries, 218 feet by 14 feet. The first is planted with Gros Colman and Muscat of Alexandria, varieties that do remarkably well when planted together in the same house. The second division is planted with Foster's Seedling, Golden Queen, Black Hamburgh, and Raisin de Calabre; the third with Muscats and Gros Colman; and the fourth entirely with Lady Downe's Seedling. The fifth division is planted with a mixture of Foster's Seedling, Buckland Sweetwater, and Madresfield Court; and the sixth and last with Lady Downe's, Alnwick Seedling, and Black Alicante. The whole of the Vines looked clean and healthy. The late varieties were bearing good crops of finely finished fruit, both bunches and berries bearing evidence of great care and attention having been paid to them throughout all the stages of their growth. Mr. Murray is an advanced Grape-grower, and does not believe in keeping the Vine borders dry at any time. He informed us that at one time the Vines here were very much infested with mealy bug, but by dressing them after pruning with a mixture of coal tar and clay worked up to the consistence of cream, and put on with a painter's brush, he had got them entirely eradicated from the vineries without the slightest injury to the Vines. The coal tar recipe is by no means new; still we had our doubts about it, like many others, but after the assuring testimony of Mr. Murray we will have no hesitation in using it in future.

The Pine stove is 40 feet by 16 feet, and contains a healthy stock of fruiting plants. The varieties consist chiefly of Queens, Prince Albert, C. Rothschild, and Smooth Cayenne. Many of the Cayennes were swelling off large fruit that would weigh when ripe from 7 lbs. to 8 lbs. each. The succession Pine pit is the same length as the stove, but a little narrower. The succession plants looked strong and healthy, and free from all insect pests. The remaining houses consist of a plant stove 32 by 23 feet, and a greenhouse 36 by 16 feet. Each department—stove and greenhouse—are well represented with fine specimen plants.

Conspicuous in the flower garden, in front of the houses described, is a large Rhododendron ponticum, 56 yards in circumference, towering up at a regular angle from the edge of the grass to a height of from 28 to 30 feet, and in the best of health. It is the largest plant of the kind we have seen, and we question if it has its equal for size in the country. In its style of growth and shape it resembles Ailsa Craig. The likeness is so great that it has been suggested by some that by a little manipulation it could be made to form an almost perfect model of that picturesque rock in the sea. We found the kitchen garden highly cropped, and everything in it looked neat and orderly. The same remarks apply to the slip outside the garden walls, where all the taller varieties of vegetables are grown. Small fruits were plentiful and good, but Apples, Pears, Plums, and, in fact, all tree fruits, were a complete failure, the same as in most places in the country this year.

One other feature of the place remains to be noticed—viz., a large poultry pond, presenting a very extensive water surface peculiarly hemmed in with wooded banks, save on one side, where a long grassy slope affords recreation and feeding ground for an enormous collection of waterfowl. This collection embraces specimens of nearly every tame variety, from the smallest ducks to the splendid black Australian swan which, reversing the natural order of things, appear to lord it over their white native brethren. At the far side of the pond flocks of wild duck are to be seen skimming along together, but ready to take wing at the first scent of danger. A neat poultry house has been built on a small islet close to the shore of the lake. At the summit of the grassy stretch where the poultry of all sizes are basking in the sun stands an aviary in the form of a pagoda, in the various divisions of which are specimens of gold and silver pheasants, pigeons of fancy varieties, "gleds" or kites, and in one compartment a fine specimen of the hunting hawk. From the pagoda a short avenue through the trees conducts to a Heather-clad headland rising sheer up from the sea, from which a magnificent view can be obtained of the Channel, Ailsa Craig, and the far-stretching southern coast of Ayrshire. Making a circuit of the lake on our way back to the gardens we notice a party of Lord Ailsa's boat-builders testing the sailing qualities of a new model of a yacht, which, with a great expanse of white sail, flew across the water at a rate that left the men in the row boat far behind.

As we drove back through the wooded policies, and cast our eyes over the magnificent panorama in the quiet light of evening,

and recalled the many interesting things we had witnessed during our inspection, we confessed to ourselves that we had seldom seen a more beautiful or a better kept place.—A. PETTIGREW, *Cardiff*.

THE PARSLEY-LEAVED BRAMBLE.

THE above, which is, I am afraid, neither known nor grown in the majority of English fruit gardens, is nevertheless one of the most valuable and productive of late summer and autumn fruits, and is well worthy of notice in the *Journal of Horticulture*. A single row here 22 yards long, and trained to tall stakes after the manner of Raspberries, has been producing a constant supply of large and well-ripened fruits for six weeks now past, and looks as though it will continue to do so for another month should the weather continue mild. Up to the present time since the first gathering commenced an aggregate of more than two bushels of good fruit have been obtained, and employed by our cook in a variety of ways for pastry, also for making jam, jellies, cheese, syrup, &c., till she tells me she appears to have an inexhaustible supply. It appears to be especially adapted for training over light wire arches or trellises spanning the kitchen garden walks, where it would be both useful and ornamental. Many of the fruiting rods with us are 10 feet long, and furnished with long racemes of fruit from the base to the summit. I do not know any other fruit-bearing plant or shrub which will produce an equally large quantity and long succession of fruit for the space occupied. Its cultural requirements are very simple, the main point being attention to training and tying out the young growths occasionally during the summer, and pruning after fruiting in the autumn, when a few of the oldest fruiting rods are cut away to make room for young growths, and those left have their laterals cut back to one or two eyes from the base, after which they are again trained to their supports and a liberal mulching of manure given to their roots.—W. K. W., *Oakbrook, Sheffield*.

EARLY WHITE GRAPES.

BUCKLAND SWEETWATER, though so extensively grown, I consider a comparatively worthless Grape. The reason why it is so often seen is because there are so few good white Grapes that ripen early under the same treatment as that best of all early Grapes the Black Hamburgh. The variety in question answers this purpose very well, but as regards quality it is only second-rate. When its flavour is most perfect the fruit is only just beginning to colour, the quality even then being no better than Sweetwater, as its name implies; and at that stage would at an exhibition, on the ground of colour alone, be discarded by all good judges, whereas when fully ripe the colour is of an objectionable brown tint and the flavour insipid, while in many places the Vine is a very uncertain bearer.

Then the question arises, What other early white variety can we substitute as a companion to the Black Hamburgh? The old Dutch Sweetwater, though small in both bunch and berry, is of far better quality than the above, and that is a property which should be sought for in preference to size; moreover, it is a sure cropper.

Ascot Citronelle is another superb early white Grape, having a rich aromatic flavour, and is a profuse bearer; but this also will probably be objected to by some on the ground of size, both bunch and berry being small, but in my opinion it is much preferable to the first-named variety.

Foster's Seedling is also an excellent early variety, and perhaps more largely grown than any other of the same class. The bunches are large, evenly shouldered, having medium-sized berries, and it has a delicious flavour.

Perhaps ere long someone will be the fortunate raiser of a Grape, the size of Duke of Buccleuch, but free from its defects as regards spotting and bad keeping. Whoever does this will richly deserve, not only the thanks of gardeners, but the large financial profit which he will be sure to reap.—W. L. H.

COLUMBIAN QUININE.—During the last two or three years a bark containing quinine and quinidine has been imported into this country from Columbia in such enormous quantities as to equal, or even sometimes exceed, the whole of the importations of Cinchona bark from all other countries. The botanical source of this bark, which is known in commerce under the name of Cuprea Cinchona on account of its peculiar coppery tint, has hitherto been a mystery. M. Triana, the well-known quinologist, has recently succeeded in tracing it out, and has stated in the *Pharmaceutical Journal* for April 22nd, that it is derived in great measure from two species of the nearly allied genus *Remijia*, none of the members of which were previously known to contain quinine. Several species of *Remijia* have leaves resembling those of the true Cinchonas, and of these M. Triana has determined

that *R. Purdieana*, Wedd., and *R. pedunculata*, Karsten, certainly yield Cuprea bark, the former being the species which contains the alkaloid Cinchonamine, recently discovered by M. Arnaud. It appears probable that other species also yield the Cuprea Cinchona of commerce; but definite information on this point is still wanting. The value of this bark has led, according to M. Triana, to great devastation of the forests in which the trees grow, and has produced a financial stagnation, business being neglected in order to follow the more profitable occupation of collecting the bark. Fortunately seeds of the tree have been received, and are now in cultivation at Malvern House, Sydenham. The tree is likely to prove valuable for cultivation in countries where malarial fever abounds, since it grows at an elevation of 200-1000 metres above the sea, at which even red Cinchona bark will not flourish.—(Nature.)

ROSE RÊVE D'OR.

IN looking through your interesting Tea Rose election I am surprised to see no mention made of a Rose which I consider should certainly appear in the first dozen if not in the first six—viz., Rêve d'Or. Is it because some growers say it is difficult to flower? All I can say is, if any grower will plant it in a cool house, and let it ramble over the roof inside, he will be amply repaid by having some splendid buds of great substance and in colour somewhat deeper than Safrano. As the buds expand they are very beautiful, although when full blown the Rose is thin. In the month of April I gathered hundreds from one plant budded on a Briar.—M. F. WOODLEY.

VEGETABLE SHOW AT AYLESBURY. NATIVE GUANO.

PRESUMABLY with the object of bringing before the public the merits of what is known as the A B C process of dealing with the sewage of populous districts and turning it to useful purposes, the Native Guano Company of the above town held an exhibition of farm and garden produce last Thursday. The preparations were on the most liberal scale, as not only were prizes to the amount of about £150 provided by the Company, but silver cups were offered by Messrs. Carter & Co. of High Holborn, and Sutton & Sons of Reading, for produce grown with the aid of the manure in question. Nor was this all. A special train of saloon carriages was chartered, and left Paddington heavily freighted with gentlemen, including the Right Hon. the Lord Mayor of London, who were interested in the Aylesbury process of sewerage-disposal, and its results as displayed in the marquee at the works. A bountiful luncheon was also provided for the invited guests, and these, to the number of about four hundred, sat down after having critically examined the A B C process and the splendid display of vegetables placed in competition for the prizes. I have no intention of giving a list of the awards, as these would be of limited interest, but may briefly describe the character of the Show and note the method by which the native guano is obtained.

The A B C, or precipitating process of treating the refuse matter of towns, has by name become familiar to most persons; but while the particular alphabetical designation is well understood by many readers of this Journal, it is certainly not comprehended by all. No doubt the familiar capitals are regarded by not a few who observe them in connection with this subject as symbolical of extreme simplicity, and that the precipitating method they represent is as easy as A B C. Simple, indeed, and easy the process is by which the solid and coloured portion of town refuse is collected and the liquid dispersed in a clear bright stream; yet the letters mean something more. They are typical of the manner in which the work is done, or rather are the initials of the chief ingredients employed in doing it—namely, Alum, Blood, and Clay. So much for the name, and now for the process. Here it is in a nutshell. The sewage as it falls into the tank is mixed with another mixture made of proper proportions of clay, charcoal, and blood, which at once removes all offensive smell; and then, when the whole is a thick opaque mass, a solution of alum is added, and the precipitation of the particles of solid matter suspended in the water commences at once—the clay, &c., quickly sinks to the bottom, dragging all the other impurities with it, leaving the water perfectly clear. Anyone can test the process for himself by pouring a solution of alum in a glass tube of muddy water, the solid particles will sink to the bottom of the glass and the water remain clear. At Aylesbury there are three tanks some 30 feet square through which the sewage passes, entering at one end in all its blackness, the effluent water passing out at the other over a channel of white porcelain as clear, to use the words of a speaker, as a "highland burn." Clear it certainly is, for in a tank of it fish appear healthy and happy; and this water tasted

—for I ventured to taste it—well, just a little “fishy,” that was all.

The matter precipitated at the bottom of the tanks—the mud—is pumped into a strong iron reservoir, and is then submitted to great pressure, the water passing out perfectly clear; the solid matter, a compound of sewage and clay, being compressed into the form of oil cakes. These, which are quite inodorous, the clay acting as a deodorant, are dried, then broken, next crushed or ground, and this, “the native guano,” is ready for use in farm and garden. During the entire process there is nothing even in the slightest degree offensive, in fact the air around is sweet in comparison with that floating over the Thames sometimes and other rivers that pass through towns.

From a sanitary point of view it is difficult to conceive that any method of dealing with sewage can be found better than this; indeed this was said in effect by the Lord Mayor after having made it his duty to become acquainted with the different processes of solving what is admittedly one of the problems of the age. He suspected that, after all the costly and elaborate methods of dealing with this subject, we must fall back on the simplicities of Nature, and separate the pure from that which is impure, sending the former into the rivers for the nurturing of fish, and placing the latter in the soil for the production of useful crops. As gardeners and cultivators generally always like to know as far as possible how the fertilisers are produced which they are invited to use, and as the whole question of sewage-disposal is so important to all, no apology is needed for devoting a little space to the matter, rather than by occupying it with a long list of the names of the individuals who have even had the honour of winning prizes for Turnips and Carrots. Most of these, therefore, will be passed in a brief reference to the Show.

Whatever the object of the Native Guano Company may have been in the great provision they made for filling their tents, it is hoped, while they will rightly demand and will ungrudgingly be accorded justice where it is due, they will not expect nor receive unqualified praise where it is not deserved. The system of disposing of sewage appears a splendid success from a sanitary point of view, but whether the Exhibition equally displayed the potency of their manure is another question. But did not the products staged prove this? They neither proved it nor disproved it. Granted the fine heads of corn with straw 6 feet long, the bright samples in sacks, the huge Turnips and Mangolds and Cabbages from farms, with the splendid collections of vegetables, the large Onions, huge Cauliflowers, good Potatoes, clear Turnips, Carrots, and Beet from gardens. Granted all this, we still know—all gardeners know—that equally good examples can be and have been produced on some soils where neither native nor exotic guano, or indeed any other so-called artificial fertilisers, have been employed. The native guano may be an excellent manure. It no doubt contains good food for plants—in fact, must contain it; yet we still want to know in what proportion it is used to produce given results, and also what other manurial matters the soil contains, before the true nature of the article under notice can be determined. Carefully conducted trials are needed in comparison with other fertilisers in different kinds of soils for testing its real worth. No doubt such trials have been made, but of these we have no record, and it is almost certain that this manure will be more largely tested. Let this be done systematically. Trials of fertilisers in private gardens are often conducted in a haphazard manner, and in a way that is not fair to one or the other of them. To test the native against imported guano, for instance, using both in the same quantity—say at the rate of 2 ozs. per square yard or 5 cwt. per acre—would be obviously handicapping the home-made article to a serious extent, for it is about four times less costly to purchase than the other. More than three times the quantity of the native fertiliser should be applied to the same extent of ground as the foreign, and to the same crops; then if the returns should prove equal or nearly so, the former will have proved its value in a substantial manner, and the demand for it will compel the authorities of towns to seriously consider the advisability of adopting the A B C process of sewage-disposal, thus rendering the streams clearer and land richer, the air sweeter and crops better; for at present the sewage of many towns and villages is worse than wasted, for too frequently it is allowed to ferment, and the disease germs that are then generated are distributed by air and by water into British homes of every class. If it can be proved by results that, say, 3½ tons of the native substance will produce as much food as 1 ton of the best foreign will, then neither special trains, lord mayors, nor sumptuous luncheons will be needed to bring the article into notice.

Very little has been said about the Show. It must suffice to say that in the fifty classes there were 400 entries and 7500

specimens, that Mr. De Fraine staged the finest collection of vegetables that has probably ever been shown by a market gardener, everything in season being represented, the whole covering a space of 15 by 9 feet; that the amateurs' and cottagers' collections were of wonderful excellence, equalling those staged by gardeners at our great shows; that Mr. Robins, gardener to E. D. Lee, Esq., won the chief prizes for collections of Potatoes with produce of unsurpassable quality; that Mr. Polley secured the first prize for the best bushel of round Potatoes with Arondinack, and the best bushel of kidneys with Pride of the Valley; that Messrs. Robins, A. Blake, gardener to H. Cazenove, Esq., and W. Finlay, gardener to Col. North, M.P., were the successful exhibitors of Grapes; that Mr. Blake won the Hon. W. F. B. Massey-Mainwaring's £5 prize for twelve stove and greenhouse plants; that Messrs. Suttons' cup for farm produce was secured by Mr. Beeson of Amersham, and Messrs. Carters' by Mr. Howard of Drayton Beauchamp; and that the produce in all the other classes was good, in most cases superior, and that the Show altogether was a great one and a great success.—J. W.

REMEDY FOR BLACK APHIDES ON PEACH TREES.

THE following I have found an effectual remedy for black fly on Peach and Nectarine trees:—1 quart of tobacco water to 3 gallons of warm water heated to about 120°; syringe thoroughly in the evening, and syringe with clear soft water the next morning, and there will not be many insects alive. If the trees are badly affected syringe on three successive evenings; but as prevention is better than cure, syringe once before the flowers open and again after they have set, and once again when the shoots are 2 or 3 inches long. In this way I have kept black aphides from the trees entirely for the season, but if two or three were seen I used to syringe at once. I am speaking of trees out of doors, as I was never troubled with fly in the houses; but these remarks are equally applicable to trees indoors and out. I have seen whole walls of trees entirely destroyed by not attending to them in time. I had as good a wall of Peaches as anyone could wish to see, whilst our neighbours' trees were destroyed with aphides.—G. G.

CARTER'S NURSERIES, PERRY HILL, SYDENHAM.

I HAD heard much of this nursery for some years, especially in connection with the periodical display of annuals shown by the firm, and as some hours remained after visiting the Holborn seed warehouses referred to on page 294, I went to London Bridge, whence Forest Hill station was reached in fifteen minutes, a few more minutes' walk bringing me to the nursery. On my arrival the great speciality of the season—Petunias, had just passed their meridian beauty, but enough remained to afford me a rare treat. There were ten thousand alone in pots. There were single and double sections, with plain, and laced, or barred corollas, with even edges, or scalloped or fringed, some chastely veined, and others curiously spotted. Some were miniatures, while others might be readily mistaken for one of Jackman's Clematis; and last, but the class I liked best, were the maculated and green-edged forms, especially the doubles—perfect flaked rosettes. Almost every colour was represented. Many beautiful and distinct varieties were named. It would have been interesting to all who love showy and beautiful annuals to see such masses of flowers grown in 5-inch pots. Many were grown in open frames, some in pits, and a number in low houses, but all were fully exposed, sturdy, and vigorous, having been removed under glass for perfecting their seeds and to keep them more under control during the process of hybridisation.

In the next house we came upon another present speciality of the firm—double Bouvardias, pink and white, Alfred Neuner and President Garfield. Remembering that the former was introduced and certificated so recently, I was surprised to find a house 100 feet long filled with plants, while the pink variety is being extensively propagated. Wherever beautiful waxy-white or pink flowers that will last a long time are in request those will be valuable additions. Several cool houses were devoted to Primulas, but for those I was too late, except to note the seed-harvesting process. One structure was wholly occupied with the “blue” Primula Holborn Gem advertised last spring. Large space, too, is given to Cyclamens; and though the plants were in comparatively small pots the foliage was beautifully marbled, vigorous, and fleshy, showing numbers of flower buds, that must make them desirable for winter and spring decoration. The striped giganteum persicum and the purple variety seem very robust, while perhaps the most desirable of all, White Swan, a pure white strain, will prove most attractive for special purposes. Gloxinias were resting, but Tuberous Begonias of the Crown Jewel strain were beautiful, valuable alike for pots and bedding.

Going out into the grounds and leaving a number of heated houses last, we wandered to a colony of succulents, which were as curious as they were beautiful, and which I was hitherto unaware were patronised here. Near these were some rare and hardy border plants, to meet the fashion in this direction. Here, too, was pointed

out the recently certificated Black Champion Currant, raised at Mr. Dunnett's, Dedham, the surprise of all who saw the berries. Nothing I had seen hitherto were to me more interesting than the large space devoted to Lilies, and I was fortunate in finding many, both of the Japanese, Martagon, davuricum, and lancifolium types in bloom. I find any time from this to the beginning of winter the best for planting the bulbs. I have some from imported bulbs obtained last year, and planted in ornamental wooden boxes about a foot square, and the same deep, in soil containing at least a third of peat, and I find the blooms 16 inches in diameter, and an average of six to the bulb. I have seen larger blooms in the borders with Mr. Burbidge, Trinity College Gardens, Dublin, a fortnight ago, but I consider this satisfactory, and not always obtained the first year of planting. I use those boxes and Lilies on Sunday for church decoration, and know of few floral ornaments so convenient to compare with them. As this use of Lilies is not common the digression may be pardoned.

I also noticed a large square of *Tropæolum Empress of India*, and I cannot remember ever seeing anything more brilliant, while the dark-tinted foliage showed the flowers to advantage. While I must pass many things, I cannot pass the new *Calendula officinalis Meteor* without commending it to your readers. It is perfectly hardy, very showy, with bright gold orange pencilling on each floret, and produces seed freely. Though I have already exceeded the space you are likely to have to spare, I have not even yet a reference to single Dahlias, Carnations, and their congeners of the *Dianthus* family, not a word of the beautiful tricolor *Chrysanthemums*, or any of the Composites, but I must stop to single out *Harpalium rigidum*, that you figured recently. There are two further houses yet to notice, and that I must dispose of in a line, devoted to a young stock of *Calceolarias*, including the new Cloth of Gold, and *Cinerarias*. We next arrive at the trial grounds for vegetable and farm seeds, returning by the Dahlia and Rose grounds, and could see through the shades of evening that the Tea Roses were remarkably fine for the season, and the Hybrid Perpetuals had commenced to wreath themselves a second time in their glorious tints.—W. J. M., *Clonmel*.

ANNUAL CHRYSANTHEMUMS.

I NOTICED in the *Journal of Horticulture* last week a few remarks concerning the beautiful *Chrysanthemum coronarium*, and I consider the plant fully deserves all that your correspondent "SUSSEX" has said in its favour; for in addition to its merits as a border annual or for lifting in the autumn for the conservatory, it may be grown with advantage for the conservatory in spring. I sowed a few seeds in February of the present year in a little heat, from which I had good plants in full flower in May. They were much admired, and nothing could have had a more pleasing effect than had these plants mixed with the ordinary greenhouse plants in flower in the latter part of spring and early summer. In addition to *C. coronarium* I would advise those who have not done so to try some of Messrs. Carter & Co.'s annual *Chrysanthemums* for the mixed border. Some of these, such as Dunnett's Golden, Dunnett's Snow White, Lord Beaconsfield, and some others, are extremely pretty. They will do well in any ordinary garden soil, and being of rapid growth they soon make an attractive display.—E. B.

TROPÆOLUM BEDFONT RIVAL.—This *Tropæolum*, which I have known the past ten years, is, I consider, the best for bedding purposes. At present, when *Pelargoniums* are quite without flowers owing to recent heavy rains, it is one mass of scarlet. It is quite distinct from any *Tropæolum* I know, and has a good formed flower, intense scarlet in colour, with light green foliage. On light soil it is at all times better than any bedding *Pelargonium* that I am acquainted with. Is this the same variety for which Mr. Dean received a first-class certificate last summer? I first saw it in 1872 in the gardens at Heslington Hall, York, but where it came from I am unable to say.—JOHN SHORT.



KITCHEN GARDEN.

CLEAR the ground of all exhausted crops, so as to have it in readiness for digging and trenching as may be found necessary. Where manure is required it should be placed on during dry weather, nothing being so prejudicial as working ground during wet weather. Soils of a heavy retentive nature should be thrown up in ridges, so as to expose as large a surface as possible to the action of the atmosphere during

winter. All soils under high cultivation, which means manuring after every crop and surface-mulching such as require it, along with deep stirring, will in the course of a few years have the soil very rich and liable to become close and soapy. Such must be trenched at least every third year, and a good liming given in the spring prior to the contemplated trenching. In trenching care should be taken not to bring much of the bad soil to the surface, but by loosening it at the bottom of the trenches seek to increase the depth of rooting and percolation of water through the soil. In the case of trenching manure must be applied afterwards, so as to enrich the comparatively poor soil brought up. It may be applied any time during the winter in favourable weather, pointing in spring prior to sowing or planting. Soils that do not require trenching and have the soil rich in decayed matter, consequently full of humus, may be given a dressing of lime, forty bushels per acre being sufficient for light soils, and double the quantity for heavy soils, whilst those that have not been dressed with lime for seven or more years may be given double the quantity. It should be applied in dry weather either in autumn or spring. Very light and shallow soils will not be improved by turning them and exposing to the action of the atmosphere during winter; in their case the ground may be manured so as to admit of the soil being turned in spring. If a good dressing of clay or marl could be placed on during frosty weather, and after being pulverised by frost or atmospheric influence dug in, such soils will be improved immensely.

FRUIT HOUSES.

Pines.—Plants on which fruit is now showing will be ripe at a time when other kinds of fruit are scarce, therefore such plants should be given a good position, where every advantage, both natural and artificial, may be obtained. Continue the temperature and treatment as last indicated in this calendar, but should the weather become cold and dull a fall of 5° in the temperature should be made. During the process of flowering it is not usual to wet the fruit, and should not be done through the winter months. The lights of all Pine houses or pits must now be washed. Plants expected to show fruit early in the ensuing year should now be rested for a time after having made growth, and as Queen plants do not generally start into fruit so readily as some other varieties it is advisable to treat the plants very carefully. The temperature at the roots should fall gradually to 70°, that of the house being kept at 65° by day and 60° at night. Houses which are naturally moist from being sunk, and having fermenting beds, must not be sprinkled, and water should only be given when absolutely necessary, which will not often be the case with plants plunged in fermenting beds. Ventilate at 70°, and freely above that temperature, closing at 70°.

Cherry House.—Dishes of fresh ripe fruit are not very plentiful in late April, May, and early June, hence Cherries afford an acceptable addition. A lean-to house from 8 to 12 feet in width is the most suitable, the last greatest width allowing a row of trees in front and the utilisation of the back wall by a row of trees, the front trees only occupying a part of the roof to the extent of about 10 feet up the rafters. For the front trees the trellis should be about 12 inches from the glass. The borders may be about 30 inches deep, with 9 inches of rubble at the bottom, and drain to carry off the superfluous water; 6 feet width is ample. Loam of a calcareous nature is necessary, and, if deficient of that, a tenth of old mortar rubbish should be incorporated, with a sixth of road scrapings. In selecting trees for planting under glass it is advisable to employ such as have been trained to walls for three or four years, as they come into bearing at once, and if carefully lifted and planted as soon as the leaves are falling they will afford early fruit the first season. The soil should be firm, and after planting a good watering must be given, mulching over the roots. *Empress Eugénie*, *May Duke*, and *Black Tartarian* are the best of the dark Cherries, and of the light-coloured *Early Jaboulay*, *Elton*, and *Governor Wood*. The house unless required for *Chrysanthemums* and similar plants, which will need mere protection from frost, with free ventilation, should not have the lights placed on for another month or six weeks. Trees in pots requiring a shift should be given pots 3 or 4 inches larger, and those requiring surface-dressing must be attended to at once, removing the mulching; and the soil near the sides of the pot as

deeply as can be done without much injury to the roots, employing rich compost, to be placed in firmly.

Peaches and Nectarines.—Unless the weather prove unusually wet the lights may remain off the house to be started early in December until the middle of next month, otherwise they should be placed on and the ventilators be open to the fullest extent when the weather is mild. The exposure of the trees to atmospheric influence after the wood is thoroughly ripe is of the greatest advantage, inducing a more complete rest than when the lights are kept on, the cleansing influence of rains and the thorough moistening of the borders being of considerable importance. Even in late houses the exposure of the trees is of the greatest benefit, but in no case should it be practised until the wood is thoroughly ripe. Trees in late houses that are not ripening the wood freely should be assisted with fire heat by day and a free circulation of air constantly.

FLOWER GARDEN.

When the beds and borders have been cleared of their summer occupants they should at once be prepared for refurnishing. If a display is wanted in winter dwarf evergreens are the most suitable, whilst for spring flowering plants will afford a more effective display. The great recommendation of plants for spring gardening is that they require no glass room or costly preparation to raise them, as an interesting display may be secured by the expenditure of a few pounds in bulbs such as Hyacinths, Narcissus, Tulips, Crocus, Scillas, Snowdrops, and Anemones, with Primroses, border Auriculas, Daisies, Violas, Wallflowers, Forget-me-nots, and early-blooming hardy annuals such as Candytuft, Limnanthes, Nemophilas, and Silenes. For edgings or marginal lines *Arabis albida variegata*, *Veronica incana*, Golden Feather Pyrethrum, Golden Thyme, *Stachys lanata*, and Dell's Crimson Beet are very effective. These and others that will suggest themselves to those intent on making a display in spring are readily increased when once procured. Before planting it will be necessary to manure the beds. Of shrubs few are more effective than the gold, silver, and plain-leaved Tree Ivies, the *Euonymuses* being distinct and bright in variegation. *Osmanthus* with their Holly-like foliage have a telling boldness, and the *Aucubas* are equally noteworthy. *Skimmia japonica* well berried is superb, and *Vinca elegantissima* very graceful. The deep green dense foliage of *Mahonia aquifolia*, and its masses of gold flowers in spring, with the white flowers of *Laurustinus*, the rose flowers of *Erica carnea* and *Andromeda floribunda*, are fine as flowering shrubs. *Cryptomeria elegans* and var. *nana* with their chocolate, *Cupressus Lawsoniana* and vars., also *C. Nutkaensis*, *Retinosporas*, *Taxus baccata aurea* and *elegantissima*, *Thuja aurea*, and *Thujopsis dolabrata*, are a combination of gracefulness and elegance. Weeds on lawns, such as Daisies, Plantains, Crowfoot, grow fast in a wet autumn, and as they are a great disfigurement to a lawn they should be extirpated at once, so that their place may be taken by the natural grasses. The heavy rains have brought worms to the surface, their casts are also a great disfigurement, hence lime water should be poured over the lawn, which soon brings them to the surface, when they may be swept up and destroyed; this being repeated a few times after heavy rains will greatly diminish their numbers and save much labour in sweeping and rolling. Keep leaves cleared up, and roll walks and grass frequently. In the borders of herbaceous the *Michaelmas Daisies* (Asters) are still fine, and so are the perennial Sunflowers, Japan Anemones, and *Tritomas*. The stems of any varieties sufficiently ripened should be at once removed and the borders kept as neat as possible.

PLANT HOUSES.

Bouvardias.—For affording a continuous supply of flowers for cutting these are unsurpassable; but to induce them to afford their full quantity of flowers through the winter months they must be kept in a brisk heat. Plants from cuttings struck in spring and placed in pits or frames in good soil, and in September transferred to 6 or 8-inch pots according to their size, if now transferred to a house with a temperature of 65° at night, with a rise of 5° to 10° in the day, will soon be covered with bloom, and will continue for many months, an application of liquid manure being given once or twice a week. They should be placed as near the glass as possible.

Gesnerias of the zebrina section must have a light position, and a

temperature of 60° to 65° at night, with 5° to 10° more by day, which will induce a sturdy growth and free disposition to flower. Supply any plants in small pots with weak liquid manure.

Orchids.—Lowering the temperature has brought such plants as *Aerides*, *Vandas*, *Phalænopses*, *Saccolabiums*, and similar kinds into a partial state of rest. Just sufficient water should be given at the roots to keep the moss damp, for if allowed to become too dry the bottom leaves are apt to shrivel and fall off. Premature growth should be prevented by keeping the house comparatively cool and dry; but a little water must be poured over the paths on fine mornings. Open the bottom ventilators, though very little will be required except to keep down the temperature, as a cool system of treatment is most desirable at this season. Plants that have not completed their growth must be kept in a moist atmosphere and watered, those on blocks being examined and watered as needed. *Dendrobiums* will now be chiefly at rest, and should be kept cool and dry. *Cattleyas* require a long season of rest, and should be kept rather dry; but the pseudo-bulbs must not be allowed to shrivel, very little water being needed to keep them plump. *Lælia purpurata* not having completed the growth should be given a favourable position at the warmest end of the house. *Calanthe vestita* and *C. Veitchii* coming into flower should not be overwatered, or the buds are likely to fall before they expand, which is caused by too much atmospheric moisture and insufficient light; therefore keep them fully exposed in the driest part of the house. *Lycaste Skinneri*, though a water-loving plant, requires less at this season, but if allowed to become too dry the pseudo-bulbs shrivel in a few days; and the water must be kept from their base, or the flower buds will decay when an inch or so long. *Cypripediums* require liberal supplies of water, as they do not need any rest.

Stove *Begonias* of the flowering section should be afforded all the light possible, and no more heat than will enable them to open their flowers freely. Afford weak liquid manure occasionally. Easily grown as these are, it is surprising they are not more generally seen. *B. insignis*, *B. Ingrami*, *B. Saundersiana*, *B. fuchsoides*, and *B. semperflorens* are especially useful.

Richardia (*Calla*) *æthiopica* should now be placed in heat for early flowering. Plants that flowered early last season, and were liberally treated afterwards, are now throwing up their spathes. In a temperature of 50° to 55° they will develop perfectly, and in a conservatory be highly effective. By having sufficient plants started at intervals flowers may be had in bloom all the year round. It is spoiled both in leaf and spathes by being grown in too much heat. The general stock ought to be at once housed, and should be kept gently growing in a light house, a temperature of 45° to 50° suiting the plants.

Introduce more Roman Hyacinths, Double Roman and Paper White Narcissus to heat. Place them near the glass in a temperature of 50° to 65°, and do not accelerate the flowering too rapidly or they will be drawn weakly. Lily of the Valley is always acceptable. Plants that were forced this season and well attended to with water and liquid manure so as to complete a good growth, and been rested outdoors, will start readily on being placed in heat, the process being accelerated by a bottom heat of 90°. Single crowns inserted in rich soil a couple of inches apart over a bed with a temperature of 90°, kept moist, and the tops covered so as to draw the spikes up to a good length, in which state they are most useful, will afford flowers in abundance for cutting, the crowns being selected with flower buds.

THE BEE-KEEPER.

THE STEWARTON AND THE BAR-FRAME HIVES. No. 2.

In a former letter on this subject I tried to explain the chief characteristics of the Stewarton hive and notice its best features. For supering purposes we hold that this hive is unequalled. The principle of the hive we highly commend; the material (wood) of which it is made we as unhesitatingly condemn. Those who try to improve the Stewarton will doubtless consider the question

whether three breeding boxes are essential to the completeness and efficiency of this hive, and whether one or two breeding boxes will not answer as well as three. If this question be fairly and fully considered I think that three sections of breeding boxes will be deemed quite unnecessary. The three supers for use over the breeding space are unobjectionable, for they afford ample space for great stores of honeycomb and give completeness to an admirable arrangement for expansion. Not so much can be said in favour of having three breeding boxes instead of one or two. In good seasons for honey, when supers become well filled, we invariably find that much honey is stored in the breeding space below. With three sections, as in the case of the wooden Stewarton, the top section can be removed for run honey, and the two bottom ones kept as a stock, and doubtless this is often done, though to my mind there is a better and more profitable way of management. Even if it were an advantage to winter the bees in the two bottom boxes we have to consider the disadvantages of a hive in three parts, which are expensive and inconvenient. I think the principle of the Stewarton hive could be well and satisfactorily carried into practice on a straw hive properly made, and sold at a much lower price than the present Stewarton. Some advanced bee-keepers of the modern school advise beginners to commence bee-keeping with inexpensive straw hives. This is good advice. I will go a step farther in the same direction, and advise beginners to commence with cheap wooden boxes rather than with expensive hives. Some amateurs and moneyed people can afford to go the whole round of fashion, but working men cannot. Buying costly hives is not the shortest road to success. The successful men in bee-keeping are those who can manage bees well in any kind of hive, and who also know that complications in bee hives, meant for the convenience of bee-masters, are often inconvenient to the bees themselves.

In supering the Stewarton hive there is a difference of opinion and practice. Some think that when the first super is nearly or partially filled the better way is to put an additional super on the top of the first, and when the second one is partly filled a third one should be put on the top of all, thus making the bees extend their stores upward farther from the breeding boxes. Some able advocates and patrons of this hive maintain that this is the proper way of supering the Stewarton. On the other hand, some enlightened apiarians think that the better and more natural way is to put at the proper time the second super below the first, and the third one below the second, and thus prevent the bees travelling through finished supers to work in others above them. The traffic of bees across virgin combs recently built would destroy to a certain extent the beautiful bloom on them when first finished; but the difference of opinion existing as to the better way of adding super to super does not detract from the excellence of the Stewarton principle of supering.

We have now to notice the bar-frame hive, which is much better known than the Stewarton. Indeed, it is so well known that any attempt on my part to explain its structure and mode of management would be unnecessary. It is the fashionable hive at the present time, and has the patronage of the bee-keepers' associations of England, and no expense is spared in commending its virtues and showing how it can be manipulated. Though I cannot endorse all that is said about its superiority and advantages, I will here mention some of its best features. The main feature and principal characteristic of the bar-frame hive is this, that its combs or bars are equal in size, moveable, and therefore interchangeable, and being so they can be removed from one part of the hive to another, or removed from the hive altogether, have their contents taken from them and restored to the hive again. Honey bars can be taken and brood bars left. For other and various purposes the moveable-comb system has advantages which no honest man will question. The frames facilitate the use of comb foundations, and if frame hives are made large enough to hold sixteen bars supering may be dispensed with, as the outside bars would answer for honeycomb or sections; and by having blind frames for partitions the hive could be contracted in winter, as is often done now. Notwithstanding all that has been and could be said in favour of the moveable comb system, I have never been able to fall in love with it. I get more and greater advantages from simpler and cheaper hives that are far more easily managed. Besides, frame hives like the present Stewarton are made of wood, which is, as has often been said, unsuitable material for bee hives. The ingenuity of bee-keepers has been taxed to find a method of letting the moisture of bees out of wooden hives, but, so far as I know, all have hitherto failed. The quilt was tried, and other schemes. Cavity walls are now being tried. Some of the American bee-keepers declare that hives cracked and open from top to bottom winter bees better than uncracked hives which have no ventilation whatever.

So far as I know, those that use and understand the Stewarton hive are quite satisfied with it, and this is certainly a proof of its

excellence. It is not a pretty hive, and its price, 25s., will and does prevent its being widely known. But if the Stewarton principle can be grafted on the straw hive and sold at a low price its usefulness will soon be known, and its fame travel fast and far. We have no hesitation in predicting that the Stewarton hive made of straw will take the lead in the supering apiaries of England.

The reader may now be ready to ask why I, who use common straw hives, commend the Stewarton principle so highly. This is a reasonable question. Many people keep bees for supering. Pure honeycomb is what they want. If supering were my only object in bee-keeping I would adopt the Stewarton principle. But I keep bees for profit, and can get as much honey from a common straw hive as can be obtained from either Stewarton or bar-frame hives, and I can sell run honey at about as high a price as honeycomb; and I wish bee-keepers to know and remember that in supering the bar-frame and the Pettigrew hive there is a loss of 2 lbs. of honey at least in every 7 lbs. gathered—that is, for every 7 lbs. of honey collected into a simple hive and there stored, only 5 lbs. are gathered into a supered hive. These facts go a long way to support the principle of simplicity as against that of complexity in hives. All complications, divisions, separations in hives are unnatural and artificial, and act as hindrances to bees at work, whatever advantage they may be to the hive-dealer and bee-master. Another consideration with me is this, that a Stewarton hive made of wood costs 25s., and for this sum I could get seven or eight first-rate straw hives, which answer well all the purposes I have in keeping bees, and, moreover, I can afford to sell excellent stocks of bees at a price almost as low as the cost of an empty Stewarton. I am quite as satisfied with my straw hives as I was forty years ago. They are so cheap, servicable, and easily managed that I have no intention or wish to possess other kinds of hives.—A. PETTIGREW.

BRITISH BEE-KEEPERS' ASSOCIATION.

THE last quarterly meeting of the Committee and the representatives of county bee-keepers' associations for the present year was held at 105, Jermyn Street, on the 18th inst. In addition to the ordinary monthly meetings of the Committee quarterly meetings are held, at which representatives of the several affiliated county bee-keepers' associations are entitled to be present. There was a good attendance at this meeting, including Mr. Thomas W. Cowan (in the chair), Rev. E. Bartrum, Hon. and Rev. H. Bligh, Captain C. D. Campbell, Mr. J. M. Hooker, Rev. G. Raynor, Rev. F. T. Scott, Mr. D. Stewart, Mr. W. O. B. Glennie (Treasurer), Rev. H. R. Peel (Hon. Sec.), and the following county representatives—viz., Rev. N. Andrews, Sussex; Rev. W. E. Burkitt, Wilts; Messrs. G. Allen and G. Garratt, Kent; J. P. Jackson, Lancashire and Cheshire; and F. H. Lemare, Surrey.

The minutes of the last meeting having been read, confirmed, and signed, it was resolved—"That certificates be prepared in accordance with the copy submitted by the Secretary, and forwarded to the several candidates who gained first, second, and third-class honours in the recent examination held at South Kensington." The Honorary Secretary was requested to communicate with the Bath and West of England Agricultural Society, the North of England Agricultural Society, and the Royal Agricultural Society of England, and to take such steps as he deems advisable for the purpose of arranging exhibitions of bees, hives, honey, &c., at Bridgewater, Liverpool, and York in connection with the annual shows of the above societies during 1883.

The Rev. E. Bartrum, Hon. and Rev. H. Bligh, and Mr. D. Stewart were appointed as the sub-committee for the management of the honey market in London.

The Rev. E. Bartrum submitted the MSS. of a short chapter on the best methods of bee management with "straw skeps," and advocated the importance of such instruction being given in the next edition of "Modern Bee-Keeping." Mr. Garratt, Mr. Lemare, Mr. Jackson, and others supported Mr. Bartrum's proposal. It was pointed out that information in regard to feeding, supering, &c., with straw skeps was already inserted in the present edition of the book. The Rev. G. Raynor and Messrs. T. W. Cowan and J. M. Hooker were unanimously appointed as the sub-committee for the final revision of the new edition of this handbook.

The Rev. W. E. Burkitt brought forward several proposals relating to the prices and terms upon which hives and other goods should be exhibited at the annual show of the British Bee-keepers' Association. It was resolved that such suggestions be taken into consideration at the time the prize lists for 1883 were determined upon.

At the close of the above meeting Mr. G. D. Haviland read an interesting paper on "The Social Instincts of Bees: Their Origin by Natural Selection." Mr. Haviland treated his subject in a masterly manner, and was heartily applauded at its close. There was a large attendance of members, including several ladies. The Rev. F. T. Scott presided. The Honorary Secretary announced that Sir John Lubbock would have taken the chair on this occasion, but a prior engagement prevented him from doing so.

TRADE CATALOGUES RECEIVED.

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Fruit Trees.*

J. Cheal & Sons, Crawley, Sussex.—*Catalogue of Trees, Shrubs, and Bulbs.*

André Leroy, Angers.—*Catalogue of Trees, Shrubs, and Plants.*

Stansfield Brothers, 69, Percy Street, Southport.—*List of Herbaceous Plants.*

H. Merryweather, Southwell.—*Catalogue of Roses.*

John Laing & Co., Forest Hill, London, S.E.—*Catalogue of Roses, Trees, Shrubs, and Begonias.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Tortoise in Garden (*L. T., Putney*).—We are not surprised to learn that your pet has not appreciably diminished the insects in your garden, the benefits of tortoises in this respect being as a rule much exaggerated. A greenhouse will be a good place for it in the winter, giving it a little bread and milk occasionally.

Gardener's Appointment (*Northampton*).—The letter you have sent us contains the names of your late and present employers, indeed all the particulars requisite for making the notification but one, this being your own name. As we have received no other letter of the same nature from Northampton you will recognise this reply.

Pruning Fruit Trees (*Amateur*).—The subject is too large for treating successfully in this column, and besides you do not state either the condition or names of the trees on which you desire information. We shall shortly publish notes on pruning fruit trees, and if after perusing them you desire further information, and will specify it, we will readily aid you if we can.

Pruning Climbing Roses (*W. A., York*).—The young growths will produce the finest flowers; but if the shoots are left several feet long they will probably be naked towards the base, as the lower buds will remain dormant. You had better shorten at least some of them, and not crowd any by securing too many to the wall, removing all decayed and much of the wiry-looking wood. We could have answered your letter more satisfactorily if you had told us the name of the Rose.

Slugs Eating Cabbages (*Idem*).—Dust the plants with newly slaked lime, applying it at night, when the plants will be covered with the enemy, and not in the daytime, when they are lurking in their haunts below the soil. Stir the ground frequently with a hoe. This will encourage the growth of the plants and check the movements of the slugs. A few ducks turned in the garden would probably be useful, but occasionally they assist the slugs to eat tender Lettuces.

Plum Leaves Unsightly (*Idem*).—Your Plum trees have been infested with insects that ought to have been destroyed early in the season. Dress the trees after pruning with Gishurst compound or nicotine soap, and be more watchful in preventing the increase of the insects another year.

Stoves for Heating (*R. S. B.*).—The stoves you name are useful for certain purposes, but we cannot recommend them for heating a vinery, and you had better not attempt to "finish" your Grapes with them. You say nothing whatever about the size of the vinery. Possibly it is too large to be safely heated by a stove of any kind. A small boiler and pipes constitute the best mode of heating, but a flue of earthenware pipes will be cheaper, and rightly made and managed will probably answer your purpose.

Temperature for Mushrooms (*H. C.*).—If the heat subsided gradually you may, if the spawn and material were good, expect Mushrooms in about eight weeks from inserting the spawn. The present temperature of 52° will suffice for the bed provided the mycelium has penetrated the mass. That, too, will be a suitable temperature for the house, and if it is too high for the plants you can reduce it by 5° without injuring the bed; the growth of the Mushrooms will be a little slower, that is all.

Training Vines (*A Reader*).—If the rafters are not more than 4 feet apart you had better train one rod up the centre of each light, not under the rafters. You may grow excellent fruit for table with the rods 3 feet apart, provided the bearing laterals are not too numerous. If the roof is short, not exceeding 12 or 14 feet, you may safely take two rods from each Vine. In his large houses at Clovenfords Mr. Thomson has two rods and upwards from his Vines, and it is questionable if finer crops of Grapes than his can be found at the present time in Great Britain. Foster's Seedling is the most free and certain white Grape for planting with the Black Hamburgh. You might try a Vine of the Duke of Buccleuch, and if you succeed in growing it well you will not regret the experiment, while if you fail you can easily train an additional rod of one of the others in its place. It does not matter whether a Vine has one, two, or three rods, provided it can root freely in good soil.

Potting Plants (*F. J.*).—Plants generally should be shifted from smaller to larger pots as soon as the roots have taken possession of the soil sufficiently to just hold it together when the plant is inverted in the hand and the pot is

withdrawn. A very good index for shifting is the protrusion of healthy roots through the drainage. It is a mistake to allow plants to be very much root-bound before being shifted. Linnaeus is one of the most suitable varieties of Rhubarb for your purpose, it being small, early, and of good colour and flavour when cooked.

The "Musk Tree" (*Inquirer*).—The plant of which you sent a leaf is known under the above name, and is *Aster argophyllus*, a member of the natural order Compositae. It is a native of Van Diemens Land, whence it was obtained by Messrs. Lee & Kennedy at the beginning of the present century, and in a wild state it acquires the dimensions of a small tree. It is well worth cultivating in a greenhouse, as the leaves are very ornamental, owing to the silvery whiteness of the under surface, and their musky perfume is also very pleasant. Ordinary loamy compost suits it very well. Specimens are occasionally seen in a collection of old plants, but it is comparatively rare.

Culture of Thunbergia Harrisii (*D. D.*).—This handsome climbing plant succeeds best in the temperature of a cool stove or intermediate house, but it will succeed in a warm greenhouse, and being trained to the roof its fine purplish flowers when hanging in festoons are very ornamental. It can also be grown in a pot and trained to a balloon-shaped or other suitable trellis, but the most satisfactory results are obtained by planting it out. A compost of turfy loam with a little leaf soil and well-decayed manure is required, supplying water freely when the plant is growing or flowering. The chief pruning needed will be thinning the growths, removing the old shoots, and training in young wood.

Duke of Edinburgh Strawberry (*T. Mason*).—This is not so new as you suppose, as it has been in commerce ten years or more. Still, it is not

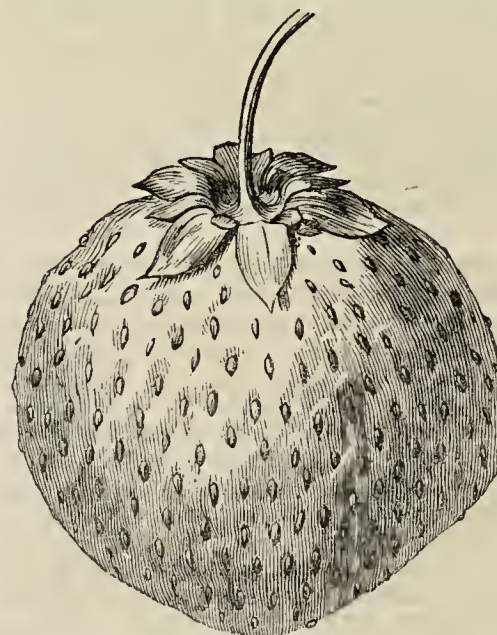


Fig. 64.—Duke of Edinburgh.

general in gardens. By what you say of the habit of the plants you have received they are very likely to be true, especially as the source from which you obtained them is good. We have not tried it for forcing, but Dr. Roden, the raiser, recommends it for this purpose. Indeed, we may appropriately give his description of it, with the accompanying figure. "Duke of Edinburgh is a fine large fruit partaking of the joint characters of La Constante and British Queen. Foliage dark green, and the habit of the plant quite distinct from all other sorts. The fruit is mostly obovate in shape, like the illustration, and very handsome. Colour darkish crimson; seeds numerous and decidedly prominent; flesh creamy white; flavour piquant, vinous, and excellent; calyx small for size of fruit. It is also one of the best early forcers, and only requires to be better known to be universally cultivated under glass in place of Keen's Seedling and other large-growing leafy sorts."

Removing Raspberries (*E. B. M.*).—You will do quite right to shorten the canes which you remove, and to plant them as you propose, only the rows must be at the least 4 feet apart, and as the canes appear to grow strongly in your garden 5 feet distances between the rows will be preferable. You must remember, however, if you dig up the entire plantation you will have but little fruit next year, and a safe course to pursue will be to retain the old plantation, or sufficient of it for yielding the necessary supply of fruit until the new one is established. As your canes only bear at the top train them in an oblique manner as suggested in another column in an article on Raspberry culture. As you "know very little about the culture of the Raspberry" there will be other fruits and crops on which you need information, and you will find the investment of 1s. 9d. in our "Garden Manual" safe and profitable.

Trees Unfruitful (*C. B.*).—The old trees which do not make much wood would doubtless be benefited by having a portion of the old soil removed from their roots, say for a distance of 3 or 4 feet from the wall, fresh soil added to the depth of 5 or 6 inches, and a thick layer of rich manure, which should be left to decay. This would encourage the production of young surface roots, and the food they would absorb would improve the health of the trees. If trees grow healthily and blossom freely no assistance of the roots will ensure good crops of fruit. Aid must in such a case be given above ground, not below it, in the form of protecting the blossoms from inclement weather in spring. In addition to dressing your trees in winter, as you wisely propose doing, you must also dress them in summer before the insects become established. You will find a good method of destroying the black aphides in another column.

Late Pears (*S. H.*).—All the answers to practical questions that are given in these columns are founded on "real experience," but in compliance with your wish the gardener whom you named has supplied some of the following varieties as likely to answer your purpose; but we must remind you that if you limit yourself to large late Pears you will exclude some of the best and most profitable sorts in cultivation. On a wall so low as yours is you must train the trees horizontally; not, however, as soon as they are planted, as they will grow much more freely fan-shaped, the branches to be afterwards brought down and trained along the seams of the wall, and at the least a foot apart. They should be on the Quince stock, which will do well in such soil as you describe. The following are hardy, fruitful, and good late Pears, but not all of them of large size:—General Todtleben, Beurré Sterckmans, Marie Guise, Nouvelle Fulvie, Marie Benoit, Passe Crasanne, Madame Millet, Glou Morceau, Beurré d'Aremberg, Eliza d'Heyst, Bergamotte Esperen, and Josephine de Malines. The three last are medium-sized Pears, but great bearers of excellent quality, and with good culture the fruit may be grown quite large enough for dessert or market purposes.

Mildew on Vines (*E. H., Barnet*).—Your Vines appear to have been attacked with unusual virulency, and your district would seem to be peculiarly favourable to the increase and development of the fungus that causes the evil. Why this should be so we are unable to say, but we certainly think you may

prevent the Vines under glass at least sustaining so much damage as they have suffered this year. As soon as the leaves of the Vines turn yellow collect and burn them, then after pruning wash and dress the Vines as recommended by a correspondent on page 365 last week for extirpating mealy bug. This washing must be thoroughly done. Wash also every portion of the woodwork of the house, coating the walls with hot lime in which sulphur has been mixed liberally, 2 or 3 lbs. being incorporated in an ordinary pailful of limewash. If the Vine border is inside remove an inch or two from the surface, and apply fresh soil. When the Vines are started in the spring paint the return pipes with sulphur, and afterwards the flow pipes when the Vines are in leaf and any specks of mildew is seen on them. These must be watched for daily, and the moment the first speck is seen dust with sulphur, and if this fails try Ewing's mildew composition. Keep the roots of the Vines moist and the house well and carefully ventilated, dry soil and a close murky atmosphere being favourable to the spread of the mildew and inimical to the Vines. If you permit the pest to become established, as you have done this year, you cannot destroy it without injuring the Vines, nor will the remedies we have suggested be effectual if they be not carefully applied.

Improving Lawn Tennis Ground (Old Subscriber).—It is not unlikely the lawn requires draining, and if so the first step to take is to put in drains 6 or 7 yards apart and 18 inches deep, with proper falls into a main drain and a clear outlet for the water. Three-inch pipes will be sufficient, and they should be covered 6 inches deep with rough cinders or gravel to render them permanently effective. Drainage, however, may not be needed—of this you ought to be the best judge; but whether it is done or not a heavy dressing of fresh soil, with a liberal admixture of manure, lime, and wood ashes spread over, so as to almost cover the grass, cannot fail to be of great benefit. Before applying the dressing comb off all the moss you can with a small sharp-toothed rake. This you may do at any time when the ground is dry very early in spring, and later, when the weather is genial, sow thickly seeds of a renovating lawn mixture. Rake it in and roll the ground lightly, and you may expect a greatly improved lawn a few weeks afterwards. If you state the extent of the ground to any seedsman or firm who deal largely in grass seeds the proper quantity of a suitable mixture will be sent to you. If the lawn is full of deeply rooting weeds you had better dig it up, forking and picking out all the rubbish, then make it level and firm, and sow it as before advised. In this way you may form a cleaner and better lawn than by taking up the old and laying down fresh turf as you propose, as, however clean the new turf may be, the roots of the weeds left in the ground will grow, and the new turf will soon be as unsightly as the old.

Removing Evergreens (E. Dawson).—The present is an excellent time for transplanting evergreen shrubs, and few that are of a suitable size and in good condition for removal will fail to grow if the work is properly done. First decide on the positions they are to occupy, and make the necessary excavations for the accommodation of their roots, the holes being a foot wider than the roots extend when they are spread out in them. Then tie up the branches, and take out a deep trench at such a distance from the stem as in your judgment seems suitable. Let this trench be deep and wide; undermine the roots, throwing out the soil as the work proceeds; remove also any soil that appears loose from the surface, and do not attempt to secure more round the roots than will adhere to them. Cut off any bruised roots, and place the shrub in its new position the same depth as it was in the old. Spread the roots out straight, placing soil on the bottom layer, then other roots on this, and so on, until they are all covered. Now, and before the soil is filled in, give a drenching of water to settle the particles round the roots, level in the remaining soil, making it firm, and the work is done. No more watering will be required until spring, and even then it is better to syringe the foliage to prevent evaporation than to saturate the soil when there are few active roots to absorb the moisture. Evergreen Oaks are amongst the worst shrubs to transplant, but still with due care and good attention they may be removed successfully.

Orchids for a Warm House (L. T. K.).—The book most likely to suit you is the "Orchid-Grower's Manual," published by Mr. B. S. Williams, Upper Holloway, price 7s. 6d., post free, 8s. The following are twelve of the cheapest Orchids suitable for a warm house, but their prices will probably exceed your anticipations, ranging from 5s. to 21s. each:—*Aerides odoratum*, *Calanthe Veitchii*, *C. vestita*, *Cattleya Mossiae*, *Dendrobium densiflorum*, *D. formosum giganteum*, *Dendrobium filiforme*, *Laelia majalis*, *Odontoglossum vexillarium*, *Oncidium Forbesi*, *Vanda tricolor*, and *Zygopetalum Mackayi*. Two good Pitcher-plants are *Nepenthes Hookeriana* and *N. Rafflesiana*; while if you require more Orchids in your cool house you might add *Pleione lagenaria* and *P. maculata*.

Cordon Peaches (J. E.).—Cordons would certainly be likely to give you larger fruit with less expenditure of time and trouble than trees in pots. The pinching of the shoots, however, must be very persistent for furnishing the trees with fruiting spurs, and in all probability you would find the most satisfactory results by not adopting the cordon plan in its integrity, but planting the trees 2 feet apart and fruiting on the young wood, shoots being selected for their firm short-jointed character, and secured thickly on the trellis space between the trees, these bearing portions being removed when the fruit is gathered, and other growths that will then be plentiful secured in their places. This is the plan adopted successfully at Chiswick, and is the simplest and best we know where several varieties have to be grown in a limited space. In your case we should not think it necessary to incur the expense of concreting the borders, but provision should be made for carrying the water off the clay, above which we should make stations for the trees by placing 18 inches of good soil on a layer of rubble protected with turves. We should keep the roots near the surface by rich top-dressings, not digging the border, but having it firm. A border 3 feet wide would be sufficient for a year or two, and it could be added to as needed. Further, the trees could be easily lifted every two or three years if their luxuriant growth indicated that the roots were penetrating the subsoil. Assuming the borders will be well managed as to watering we should prefer them inside, but this is not a question of moment, and the trees may be planted inside or outside as may be most convenient. We should not plant Peaches and Pears alternately, but devote a portion of the house to each kind of fruit separately. A foot from the glass is a suitable distance for stretching the wires, but the trees will do equally well if they are 2 feet from the roof of a light house, and this is often more convenient for dressing the trees. You will find the necessary details for pinching fruit trees grown on the close spur or cordon system in De Bruijn's work on fruit trees, published by Messrs. Lockwood and Sons. Your Vines will certainly be improved by the system you have adopted, but the benefit will not be so marked next year as the year after, as the wood on which you must depend for the next crop was made under unfavourable conditions.

Names of Fruits (G. P.).—We are obliged by the specimens of Lord Lennox. Of the other fruits you have sent No. 1 is Winter Majetin, a hardy, free-bearing, and good culinary Apple. No. 2 is a Costard, of which there are

several varieties; you may call it the Longhills Costard if you like, as we do not remember anything exactly like it. The Ribston Pippin is quite true and well grown. (C. P., Herts).—1, Maréchal de Cour; 2, Eyewood; 3, Josephine de Malines, prematurely ripened. (Beverley).—1, Beurré Beauchamps; 2, Glou Morceau; 3, Baronne de Mello; 4, Winter Nellis. We think the names are attached to the right numbers, but when these are sent loose the tickets are so liable to get displaced that we cannot guarantee accuracy in this respect. Numbers ought always to be firmly attached to the specimens.

Names of Plants (J. F. L.).—A and D, *Abies cephalonica*, the former a stronger variety; B, *Abies lasiocarpa*; C, *Abies balsamea*. (Inquirer).—1, *Nicotiana glauca*; 2, *Aster argophyllus*, the Musk Tree (see reply above); 3, *Myoporum laetum*, an Australian shrub which thrives best in a greenhouse. (H. S.).—The plant of which you sent a spray is probably *Thunbergia Harrisii*, but why did not you send flowers when you had them? We could then have given the name with accuracy. (G. P., Hants).—The spray No. 1 sent last week we have since recognised as *Escallonia montevidensis*.

Fumigator Defective (W. H.).—Your self-made fumigator appears to be good, and we think if you soak the rag or whatever you use in a weak solution of saltpetre and dry it sufficiently for use, that it will answer your purpose. If you use too much saltpetre the material will not only continue alight, but will burn too quickly. The strength suitable for your purpose can be easily determined by a few experiments.

COVENT GARDEN MARKET.—OCTOBER 25TH.

BUSINESS still keeps quiet, the late unsettled weather preventing any revival. Kent Cobs are active and well maintain their value.

FRUIT

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 0 to 7 0	Lemons.....	case	20 0 to 30 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	2 0 3 0
Cherries.....	½ sieve	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	100	6 0 10 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 2 0
Figs.....	dozen	0 6 1 0	" dessert.....	dozen	1 0 2 0
Filberts.....	lb.	0 6 0 0	Pine Apples, English	lb.	3 0 5 0
Cobs.....	100 lb.	0 0 45 0	Raspberries.....	lb.	0 0 0 0
Gooseberries....	½ sieve	0 0 0 0	Strawberries....	lb.	0 0 0 0
Grapes.....	lb.	1 0 3 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Lettuces.....	score	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mushrooms.....	punnet	1 0 1 6
Beans, Kidney....	100	1 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beet, Red.....	dozen	1 0 2 0	Onions.....	beh.	0 6 0 0
Broccoli.....	bundle	0 9 1 6	Parsley..... doz. bunches		3 0 4 0
Brussels Sprouts..	½ sieve	1 6 2 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 10 0 0
Capsicums.....	100	1 6 2 0	Potatoes.....	cwt.	6 0 7 0
Carrots.....	bunch	0 4 0 0	" Kidney.....	cwt.	6 0 8 0
Cauliflowers.....	dozen	2 0 3 0	Radishes..... doz. bunches		1 0 0 6
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz. bunches		2 0 4 0	Salsify.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzonera.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	lb.	0 3 0 4
Garlic.....	lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Tomatoes.....	lb.	0 3 0 6
Leeks.....	bunch	0 3 0 4	Turnips.....	bunch	0 2 0 4



POULTRY AND PIGEON CHRONICLE.

THE DEVON BREED OF CATTLE.

(Continued from page 377.)

In their original districts Devons have been largely kept by the tenant farmers, clearly proving that they are a good rent-paying breed in the cold hilly portions of the grazing districts of the county, where weightier animals would have fared badly; and experience proves that they will flourish anywhere under judicious treatment. Having purchased them of different ages for feeding and fattening under cover for many years, we have found them to average 10s. per week increased value both in winter and summer, which, under moderate feeding—such as 64 lbs. of Mangolds per day, with 4 lbs. of linseed cake, and sweet straw *ad libitum*—yields a fair profit. In the summer time we always feed in the boxes with Trifolium first, then Clover (of each as much as they will eat), with 4 lbs. of linseed cake per day. This plan of summer-fattening answers particularly well with Devon cattle at from two and a half to three years of age, because we can cut

Clover two or three times instead of risking the making of Clover hay. In this way the consumption of an acre of Clover will make double the amount of meat than when converted into hay, with all the expenses of cutting, making, rick, thatching, and risk of damage through adverse weather. On farms where large quantities of straw are grown, the box manure arising from Clover and cake-fed animals is superior to any arising in the case of winter fattening of the animals. We do not, however, value this breed to raise on the system of early maturity or for making "baby beef," because the Herefords or Shorthorns being more "growthy" would surpass them; but as calves for suckling in the making of veal they make the highest quality of veal compared with any other variety of cattle. Probably, however, the polled Angus or Aberdeen breed would equal them if reared under the same system and for the same purpose, but having never tried it we cannot speak positively. Upon the above-named system of box-feeding we have won numerous prizes with Devon cattle in contests with Shorthorns at the local exhibitions.

In looking back to a period of some forty or fifty years ago it is thought by many, and we agree with them, the Devons generally were larger animals than we have now. That they were gay-headed, upstanding, useful stock, especially the dairy cows, no one can deny. At the same time it is asserted by some experienced breeders who can remember them that they were deficient in those extra rich symmetrical "gems" which have since won our Royal Agricultural prizes, and in that high quality, perfect symmetry, and depth of frame now to be met with in our best herds maintained for exhibition purposes. It was not uncommon in former days to allow heifers to attain, and sometimes to exceed, the age of four years before calving. Thus their growth was unchecked; but at present, partly from the necessity of bringing them into profit earlier, and partly from the difficulty sometimes occurring in breeding from older animals, they are allowed to calve at three, sometimes at two and a half years old. In the latter case, without great attention and good feeding, the frame will be smaller and the growth of the horn checked, depriving the animals of their otherwise grand and imposing appearance. It is, we consider, quite impossible for such immature creatures to stand this unnatural drain upon the constitution without damage, and probably if the practice be continued, as well as that of breeding largely by the service of very young bulls, the general hardihood of the race will become impaired and their size reduced.

Many reasons exist why Devon breeders are seldom exhibitors at Smithfield or Birmingham fat stock shows, for they know it is useless to send any but a perfect animal to either; and having such a great demand for bulls, the best, and in fact nearly all the bull calves, are reared for that purpose instead of being steered for fattening, and good cows are mostly bred from up to an age when they would be too old to exhibit. Besides this their farms are more adapted for breeding than for feeding purposes, with which system exhibiting at fat stock shows would seriously interfere.

We find that there is to be met with in South Devon quite a distinct variety called the South Hams breed, and they have probably at some time been crossed with the Guernsey. They are reported to be good milkers, possessing large frames and coarse bones; but as dairy stock they are preferred by tenant farmers to the high and well-bred Devon, as they are very hardy, capital milkers both in quantity and quality, and the off-going cows make heavy weights, especially when fed in the rich and fertile vales of South Devon.

We will again refer to the period before the Herd Book was established; for it is a fact that until a comparatively recent period the existence and reputation of the Devon breed was chiefly sustained by tenant farmers and yeomen who could not afford to give the almost fabulous prices which are paid for Shorthorns. Previous to the publication of the Herd Book breeders were accustomed to speak of their best animals by some distinguishing name, often that of the donor of a prize it had won, as, for instance, the bull Sillifant was so called after Mr. Sillifant, who first gave the prize for a yearling bull at Exeter, or it referred to any accidental circumstance connected with its career, thus enabling farmers of the locality to indicate and recognise any particular beast alluded to. Strangers, however, found this more difficult; therefore Captain Davy of Rose Ash (to whom we are indebted for much information in his essay), observing the deficiency, and thinking they deserved to have their pedigrees recorded, and that it would greatly assist the public in tracing out different types and blood, compiled and published the first volume of the "Devon Herd Book" in time for distribution at the Royal Agricultural Show at Windsor in 1851. It contained the entries of 132 bulls and 483 cows, alphabetically arranged, and

numbered separately for the purposes of distinction and reference. Among the earliest entries was Prize (108), calved about 1819, bred by Mr. Quartly, and sold to Mr. Childe of Kinlet; Forester (46), also bred by Mr. Quartly in 1827, and his great grandsire, bred by the late Mr. J. T. Davy of Rose Ash; Oxford (89), bred in 1836 by the late Mr. Wm. Davy of Flitton, who gained the first prize at the first Royal Agricultural Meeting at Oxford; Cambridge (12), and Sillifant also were well remembered. The fifth volume of the Herd Book, which brought up the number of bulls to 977, and the females to 3143, was published in 1869.

The traditions of Devon cattle breeders take us back to a very early period. For instance, the far-famed breeder, Mr. Quartly, who relinquished business in 1836, had a sale, and was succeeded by his nephew, Mr. John Quartly, at Great Champson, in Molland, with whom he resided until his death in 1856, aged ninety-two. Mr. John Quartly writes, "Great Champson, the farm I now rent of Sir N. W. Throgmorton, Bart., has been in the occupation of my forefathers, my uncle, and myself for 170 years, and the cattle, I believe, now on the farm are of the same breed as those at the beginning of that time. The late Prince Consort first established a herd of Devons in 1856 selected from those of Messrs. Turner, Farthing, Mogridge, and Quartly. The prize lists of the Royal, Smithfield, Birmingham, and other agricultural societies testify how judiciously the managers of that herd have bred animals combining the extra quality and symmetry of the North Devon with the size of the Somersetshire Devon. The Royal stock was first entered in the third volume of the Herd Book in 1859. The Davy family have bred choice Devons for the last 150 years; they know that John Davy, who died at Rose Ash in 1790, aged eighty-four years, always bred them. Many noblemen and gentlemen have patronised the Devon breed of cattle. In Dorsetshire Lord Portman selected a capital herd from Messrs. Davy, Tapp, Dee, Merson, and Quartly. Mr. J. A. Smith of Dorchester had a splendid herd of Devons when we visited his farm about thirty years ago; also Mr. E. Pope of Great Toller, Dorset, whose herd numbered many prizetakers, and other gentlemen too numerous to mention."

The first recorded exportation of pure-bred Devons to America took place in 1817. Mr. Patterson of Maryland, Mr. Peters of Atlanta, Georgia, tried Shorthorns and Devons, but sold the former, finding the latter better suited to warm climates. Mr. Wainwright of Rhinebeck, New York, was a pupil of Mr. Turner at Barton, near Exeter, and purchased of him some of his prize-winning stock at the Royal and other shows, and subsequently with the offspring of these purchases gained high honours at New York shows. We have more than once laid stress on the marked improvement in quality, symmetry of the large-framed Somerset Devons produced by the use of the neatest North Devon bulls, and this view of the question is borne out by the late Mr. Henry Cline in his "Observations on the Breeding and Form of Domesticated Animals." He says, "When the male is much larger than the female the offspring is generally of an imperfect form. If the female be proportionally larger than the male the offspring is of an improved form. The proper method of improving the form of animals consists in selecting a well-formed female proportionally larger than the male. The improvement depends on this principle, that the power of the female to supply her offspring with nourishment is in proportion to her size, and to the power of nourishing herself from the excellence of her constitution." As we have thus traced the Devon breed from the earliest times when their existence was scarcely known beyond the then remote county from which they derive their name, we must notice the great advantage breeders of present day possess in having animals to breed from possessing such a long pedigree formed and maintained by a succession of intelligent and persevering men, who are not slow in availing themselves of the advantage, and now appear on the prize lists of Smithfield, Birmingham, &c., with splendid Devon bullocks—Mr. Bult, Mr. Kidner, and others, who do honour to themselves and benefit the consumers of meat throughout the kingdom.

WORK ON THE HOME FARM.

Horse Labour.—We suppose the winter Beans, Rye, Trifolium, and Vetches have been sown in good time; but in the event of failure of the plant of Trifolium it is not too late to sow again at the present time a larger quantity of seed per acre, not less than 30 lbs., upon a fresh piece of land, and if on a fallow surface so much the better, because the young plants are not so likely to be destroyed by the slugs as when the seed is sown upon a Wheat stubble, or whereon these pests have been able to maintain themselves until the present time. It will now be time to commence seeding the land for Wheat even in the vale districts of the kingdom; for on the hills or cold soils in the various counties we will suppose that the Wheat land has been for the most seeded before this time. If, however, the weather

is favourable for ploughing and drilling, there is no better time than during the next week or ten days from this date. If from unavoidable circumstances the seeding of Wheat should be delayed into the month of November, the home farmer should be prepared to do the work daily, so as not to trust the weather, for it is seldom that we obtain an opportunity to sow the seed in good condition at that time unless the ploughing, drilling the seed, and finishing the work is done simultaneously. This is the only way to be sure of a season, for it must be remembered that the English climate in November is either wet or frosty in the morning, both of which interfere very much with the work of seeding, whereas if sufficient horse power is judiciously employed in finishing off the work as fast as the seed is drilled, if rain sets in at any time of the day, the work done is secure against variations of the weather afterwards. The weather is now too uncertain for undertaking such work as threshing corn ricks in the fields, therefore when the horses cannot be doing day work connected with the Wheat season the winter fallow-ploughing may be done at odd times. The odd horse or mule will now have plenty of jobbing work to do, such as carting roots for the cattle in their boxes, hurdles and hay for the shepherd, also bay roots and straw for litter for the cart horses, straw for littering the pig pens, dairy-cow stalls, and cattle sheds as night lair for the calves and yearlings. We know farms where mules are kept to do the odd work, and they answer better than horses for all jobbing work on the farm all the year through, including hoeing the root and corn crops by the use of the horse hoe, it is found that the day is never too long for them when well fed. They are not subject to diseases like horses, are very long-lived, frequently outliving the home farmer, himself, but it is necessary to obtain an animal of the largest kind, which are costly, and cannot be bought for less than a cart horse of a good stamp and size. We hear a shipload is coming from Egypt of 350 animals; they would all find ready buyers if thousands were brought to this country of the right sort and size.

Hand Labour.—The heaping and storing of many Carrots and Swedes will now be going on, also the cutting and carting of border grass, seaside sedge, river sedge, and rough coarse grass in the plantations; also the collection of seaweed in the seacoast districts. All of these materials are extremely useful in the storing of roots, also in saving straw, an article now improving in value annually, especially in the grazing districts and in the immediate neighbourhood of large towns. Nor is this a matter of surprise when we know that nearly every tradesman now keeps a horse or horses connected with their advertising vans; in fact, the use of straw for feeding cattle is beginning to be better understood either as a substitute or in connection with hay for horses, hence it will answer better in the future to grow long-strawed crops of corn, as well as growing full crops by generous and liberal manuring. Labourers will now be required in the woodlands and hedgerows for cutting and making the hazel into hurdles and wattles, also the cutting and felling of Ash and Elm timber will be going on. The planting of Larch and other trees may now be provided for by cultivating and preparing the land, setting the young plants; and where the plantations have arrived at a size which make them valuable for the purposes intended, such as Hop poles and railway sleepers, they may now be cut and cleared, and the land either brought into cultivation for other purposes, or otherwise, as we have done on some properties planted the land again only by grubbing and planting between the old stools without removing them, as their removal is attended with heavy expenses in the absence of steam power. We can point now to plantations of Larch of splendid growth, for the old stools soon decay without injuring the growth of the young plants of succession.

The water meadows will be now, or shortly, in flood, and will require the constant attention of the drowners. Low flat-lying meadows should now be free of the cattle and the trenches taken out with care, and thus remain during the winter months whether they are to be grazed or cut for hay in the following year, for the herbage will be improved in quality by preventing all stagnant water from lying upon the surface of any grass land. Men will now be daily required in making out the water furrows upon the cold soils after the Wheat is sown; and it is important, too, that the land furrows between the ridges should be struck out with the double mould-board plough instead of the ordinary plough, which throws up the crumbs of earth from the furrow on one side only. Men will also be carefully employed in steeping the seed Wheat to prevent smut, &c., and we know no better material than Down's Farmers' Friend for the purpose, as it gives but little trouble, and with full directions for use but few mistakes can be made by the most ignorant workmen.

Live Stock.—The young sheep and wethers now feeding on roots will require cake in admixture with the cut roots. Some persons object to the cutting of common Turnips, but we prefer to do so always, as it is little trouble to prepare them for the cutter, and at the same time the waste is less than when eaten on the land; and this together with the advantage of mixing meal with the roots, and the animals having more time to lie down, makes it the most profitable method of management in open field feeding. In the southern and home counties where the horned Dorset and Somerset ewes are kept for producing early lambs for the metropolitan market they have commenced lambing and are yearning numerous twins, and although they are very high in price, yet they will with high feeding and careful shepherding pay more than any other ewes, either Downs or cross-breeds, because they can be all sold off, both ewes and lambs, in first-

rate condition by Easter. These ewes as fast as they drop their lambs should have the best grass, such as young Clovers and Italian Rye Grass, with a dry night lair and some white heart Cabbages cut and mixed with linseed cake meal in the troughs. By this style of feeding the ewes will keep their twin lambs and themselves also in first-rate condition until they go with their lambs on to root-feeding. The manner of feeding from that time we will direct on another occasion. There are many half-fat bullocks forced on the markets now, and this is home farmer's opportunity to buy them for finishing off in the boxes; this has always been a favourite plan of ours, which we have found to answer a good purpose.

ILLUSTRATED BRITISH BALLADS.—Parts 17, 18, 19, and 20 of this work, now being issued by Messrs. Cassell, Petter & Galpin, contain some well-selected ballads, beautifully illustrated, and amongst them the following are noteworthy:—Browning's "Pied Piper of Hamelin," Peacock's "Pool of the Diving Friar," Praed's "Quince" and "The Red Fisherman," Kingsley's "Red King," Manson's "Robert the Bruce," "Robin Hood," and "Guy of Gisborne," with several others relating to Robin Hood; Davis's "Sack of Baltimore," Wordsworth's "Seven Sisters," "Sir Andrew Barton" from the Percy "Reliques," and Hogg's "Sir David Graeme."

POULTRY AND PIGEONS

BANTAM NOTES.

THERE is evidence that the Bantam fancy was the earliest phase of poultry-fancying in this country. Long before poultry were carefully bred up to ideal standards, and long before open poultry shows were dreamt of, there were private Bantam clubs in some districts, like columbarian clubs then and now-a-days, where rival fanciers met, compared notes, and showed the results of their breeding. Bantams, as we have often pointed out, are a suitable hobby for many who could not possibly keep Geese and Turkeys, or Brahmas and Dorkings. Nearly all the objections which occupants of small premises make to poultry in general are pointless in the case of these pigmies. They live where no other fowls could live, and thrive and luxuriate where others would pine. We are, therefore, very glad to see that the Bantam Club formed to breed and improve them is making some progress. Years ago an attempt was made at the Crystal Palace to establish a show of Bantams and Game birds in the spring. One pretty show was held, but it was not sufficiently successful to be repeated. Since then we have never seen anything like a prize list sufficiently complete to be any real encouragement to Bantam breeders till that of the forthcoming Kendal Show reached us this week. The Bantam Club has, we believe, for some time subvented such shows as have given a promise to give good classification to miniature fowls. Now for the first time it purposes to hold a special show of Bantams at Kendal in connection with the general poultry show there. The classes, twenty-eight in number, as follows, seem to us admirably arranged:—

They are: Game Bantams.—1, any variety cock over one year; 2, Black-breasted Red cockerel; 3, Brown-breasted Red cockerel; 4, Duckwing cockerel; 5, Pile cockerel; 6, any variety hen over one year; 7, Black-breasted Red pullet; 8, Brown-breasted Red pullet; 9, Duckwing pullet; 10, Pile pullet; 11, selling class, cock or cockerel; 12, selling class, hen or pullet. Bantams (other than Game).—13, Black or White Rose-combed cock or cockerel; 14, Golden Sebright ditto; 15, Silver Sebright ditto; 16, Japanese ditto; 17, Cuckoo or Scotch Grey ditto; 18, Booted (any colour) ditto; 19, any other distinct variety ditto; 20, Black or White Rose-combed, hen or pullet; 21, Golden Sebright ditto; 22, Silver Sebright ditto; 23, Japanese (any colour) ditto; 24, Cuckoo or Scotch Grey ditto; 25, Booted (any colour) ditto; 26, any other distinct variety ditto; 27, selling class, any variety cock or cockerel; 28, selling class, any variety hen or pullet.

Such a prize list as this gives an opportunity to many who have hitherto shunned exhibitions, especially the hazard of variety classes, to learn the comparative worth of their little birds and to enter them for a fair trial. It is not uninteresting to compare this comprehensive list with the catalogues of Bantams given in poultry books published years ago. Writing in 1850 Dixon enumerates Nankins, Partridge Bantams, Gold-laced and Silver-laced Sebrights, Black and White Rose-combed, Feather-legged, and Creepers or Jumpers. We fancy that he confused the old Gold and Silver-spangled with Partridge, as he describes them "almost miniatures of the Golden Hamburg fowls, both Pencilled and Spangled." We can remember the former, now we fear extinct, as extremely pretty birds. We fancy they were much used in the manufacture

of Sebrights. We have always believed Partridge to be nearly akin to Nankins, if not darker specimens of the same breed.

The list given by Wingfield and Johnson in 1853 differs little from Dixon's. It includes the Nankin Bantam, the Game Bantam, the Spangled Bantam, the Sebright Bantam, the Partridge ditto, the Black ditto, the White ditto, Creepers and Jumpers. It will thus be seen that Game Bantams, since so popular, were then newly produced and unknown three years before to a fancier of much research.

The lists, however, alike of poultry books and poultry shows, are surpassed by a private collection actually in existence. About a year ago we described the great Knighton establishment, its multitudinous birds, and their wonderful abodes. We have had the great pleasure of revisiting it, and took notes of the distinct varieties of Bantams which it now contains.

They are:—Game—1, Black Red; 2, Brown Red; 3, Piles; 4, Duckwing; 5, Birchen Duckwing; 6, White; 7, Wheaten. Other than Game—8, Black Rose-combed; 9, White ditto; 10, Nankin; 11, Silver Sebright; 12, Golden ditto; 13, Cuckoo (Rose-combed); 14, Scotch Grey; 15, White Japanese; 16, Dark ditto; 17, Buff ditto; 18, White Booted; 19, Black ditto; 20, Red or Partridge Tailless; 21, Speckled ditto; 22, White Booted ditto; 23, Red Booted ditto; 24, Speckled Booted ditto; 25, Black Frizzled; 26, Brown ditto (singled-combed); 27, ditto ditto (Rose-combed).

Besides these almost of Bantam size are—28, Japanese Silkies, white, dark-combed; 29, Japanese Silkies, red-combed; 30, Coloured Silkies; 31, White Frizzled; 32, Pile Frizzled, not to mention innumerable little birds of crossed breed, some of them approaching to new and distinct varieties. Pekins alone are absent from the exhaustive list.

It will be interesting to see what novelties this forthcoming Show brings forth. We have heard vague rumours of Polish Bantams in America and Brahma-Bantams in England. Every strain of Bantams must have had a beginning either through natural or artificial selection. We can see no reason why other liliputian families should not appear. Every fancier who possesses peculiar Bantams should contribute to the success of the Kendal Show, and yet after all we doubt if such variety can be there collected as we have just enumerated as flourishing in the Knighton aviaries.—C.

POULTRY NOTES AT WOLVERHAMPTON SHOW.

THE Oxford Show, which for many years has taken a leading position amongst the autumn chicken shows, having unfortunately become extinct, the Wolverhampton Committee wisely decided to alter their date to that of the old Oxford meeting, and to alter their schedule accordingly. This resulted in an entry of some 650 pens in fifty-eight classes, and the result would probably have been better, but that the date of Dorchester Show unfortunately clashed. This, we understand, will be avoided another year, and we have every hope that Wolverhampton will in a great measure fill the void caused by the extinction of Oxford. The schedule opened with the Game classes. The numbers here were pretty good, and the general quality above the average. Mr. W. Foster won the cup with a Black Red cockerel, which might well be selected as a typical bird except for a slight defect of colour in his under parts. The same gentleman stood first with a very good Black Red pullet. Mr. R. W. Warner and Mr. A. G. Potter also took first honours for a Brown Red and a Duckwing cockerel respectively, while Mr. Brierly was first in the Brown Red pullet class with a very smart bird in grand condition.

In Dark Brahma cockerels we could not agree with the awards. First and cup went to Sir Henry Thompson for, as we think, the Dairy Show third-prize bird. Sir Henry Thompson's other bird (62) was quite out of condition, and necessarily passed over, and the winner showed signs of overwork. He is too long in leg, and has not the true Brahma shape. Second far too long in back and lanky; third the Dairy Show second, not looking so well; fourth a grand body, but foul-coloured on shoulder, which should have thrown him out. We liked Mr. Fryer Bennet's very highly commended bird best in the class. He showed some white on breast and foot, but was a grand Brahma. The same exhibitor's other two birds hardly got their due either in a class which though large was by no means a good one. Pullets numbered thirty-six, and were a much better class. The winner (R. Holland) was large, shapely, and well feathered, colour and marking even throughout, but the latter wanting distinctness. She had also an old look, which should have made us hesitate to include her in the list. Second large and fairly marked, but showing a rich chestnut shade on parts; third held the same position at the Dairy Show, and might have gone higher here; fourth (Pritchard), and another pullet of the same exhibitor's, were the best in marking throughout, but much wanted shank and foot feather; v.h.c. (Henshall) one of the best in the class, though rather dull in colour. Light cockerels were not so numerous as the Dark, but better in quality. The winner (G. H. Wood) was, we think, the bird we liked at the

Dairy Show, and improved since then; second (Mrs. Holmes) very shapely and short in leg, but wants distinctness of stripe in hackle; third (While) we thought a mistake, as though shapely he much wanted size. The Dairy Show winner was here only v.h.c., which was less than his due. In pullets the Dairy Show winner added another to her victories by taking the cup; second going to Mr. Lucas for a pullet whose hackle was beautifully distinct in marking; third (While) and fourth (Mitchell) were also in the Islington list.

Cochins were good classes, and we were pleased to see that in many cases our comments on the Dairy Show awards were justified here. The cup Buff cockerel there here went down to third, and Mr. Proctor's seconds there deservedly headed the list in each class. Second for cockerels went to a large even-coloured bird shown by Mr. Stretch, a similar honour for pullets going to Mrs. Davidson for a broad shapely pullet poor in foot feather. Partridge cockerels were only a moderate lot. The winner (Mrs. Turner) is promising, though hardly ready yet. The winning pullet was Mr. Southern's beautifully marked bird which we selected at Islington. Mr. Darby took first with a Black cockerel of exceptional merit and in splendid condition. The same exhibitor's winning pullet was shapely but wanted gloss. In Whites Mr. Chase took the lead; his cockerels were hardly yet at their best, but his winning pullet was splendid in size and shape, though hardly so pure in colour as we could wish.

Dorkings were hardly so numerous as at Islington. In Coloured cockerels first (Smyth) was large and good in most points. His lobe was white, but the Judge, perhaps rightly, does not seem to regard this as a demerit. Second (Gardon) was dark and of good size. Mr. Cranston was third in cockerels and first in pullets with good birds, and the same exhibitor also stood first in Silver-Greys, which were a good class.

Spanish were small classes. First in cockerels (Brown) was the Islington third, which we much admired there. The first pullet (Aldridge) had a large face, though inferior in quality to second (Brown), doubtless thrown out through want of condition.

Houdans were good classes, the first cockerel (Thomas) and the first pullet (Jennings) being both good all-round birds. Plymouth Rocks were good classes. The winners were rather dark in foot and beak for our taste. Minorcas and Leghorns were good though not numerous classes, and the same remark applies to Polands. Andalusians were stronger in number, and Mr. Boissier here repeated his Dairy Show victory. Hamburgs were few though fairly good in quality, and most of the prizes went to the usual winners. Bantams had a liberal classification, and were well represented. The winning Pekin Ducks (Kellock) were especially fine in size, shape, and colour. In the variety poultry class Malays were first and third, and Crève Cœurs second and fourth.

The Judges were Messrs. O. E. Cresswell, J. Dixon, J. H. Smith, and Captain Heaton.

OUR LETTER BOX.

Canker in Pigeons (T. W.).—You hardly give sufficient information to enable us to advise you. Try the following remedy: Mix carbolic acid one part with glycerine eight parts. Scrape away with a knife the secretion on the diseased part, and apply the above mixture by means of a camel-hair pencil to the affected parts. Be careful not to let the acid touch the eyes. If your birds are of a small variety decrease the strength of the solution one-half for application inside the mouth.

Turnips and Frost (C. O. E.).—You have been rightly informed that large Turnips which have ceased growing are more liable to be injured by frost than smaller and later-sown examples that are yet in active growth. You had consequently better use the larger first, and not leave them till the last as you appear inclined to do.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882. October.		Barometer at 32s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sun.	15	29.989	51.8	45.4	S.E.	53.2	55.9	46.1	63.1	44.8	0.496	
Mon.	16	29.700	46.9	43.4	N.E.	52.5	48.6	44.5	51.6	45.9	0.490	
Tues.	17	29.763	48.0	47.7	N.E.	51.7	50.0	45.7	54.6	47.6	0.010	
Wed.	18	30.153	48.7	47.8	N.	51.0	53.2	42.7	60.7	38.2	0.012	
Thurs.	19	29.922	52.2	50.9	S.E.	50.7	55.7	42.7	59.1	37.6	0.348	
Friday	20	29.834	46.1	46.0	W.	51.1	60.9	44.6	58.3	40.1	0.087	
Satur.	21	29.586	53.0	51.9	S.	51.1	58.0	45.8	65.6	43.3	0.594	
		29.850	49.5	48.0		51.6	51.7	44.6	64.7	42.5	2.937	

REMARKS.

15th.—Fair, but very dull and cool; rain after 9 P.M.

16th.—Wet all day.

17th.—Damp and drizzly day, fine evening.

18th.—Dull hazy morning, fog in latter part of afternoon and in evening.

19th.—Cloudy dull day, rain after 4 P.M.

20th.—Fog early, fine pleasant morning, showery afternoon.

21st.—Wet all day and all night.

A wet week. Temperature about the average, but 5° below that of the preceding week.—G. J. SYMONS.



2nd	TH	
3rd	F	
4th	S	
5th	SUN	22ND SUNDAY AFTER TRINITY.
6th	M	
7th	TU	Sale of Poultry at Mr. Stevens's Rooms, Covent Garden.
8th	W	Sale of Bulbs at the same Establishment.

RENEWING AND INCREASING HARDY HERBACEOUS PLANTS.

It is too commonly thought that all the care necessary for a border of hardy herbaceous plants is to plant them and leave them alone. This is considered by many to be the chief recommendation of these plants, as when once planted they require no labour in cultivation. It is quite true that by the use of hardy plants a gay garden may be had for ten months in the year at a far less expense than where a large number of tender plants are used; still, hardy plants will not do well without constant attention from the owner or his gardener. The work required may be divided into four parts—first, increasing and renewing the plants; second, renewing and dressing the soil; third, keeping it clear of weeds; fourth, tying up. The third and fourth items will suggest themselves to everyone, and little need be said about them. The mode of carrying out the second must depend partly on the nature of the soil, partly on the materials at disposal; but I propose here to make a few general remarks on the first.

For increasing and renovating stock October is, perhaps, the most important month in the year. Perhaps some may say, "I do not want to increase my stock, as I prefer large plants to small, and have already plants enough." Still, there are very few plants which will continue to flower in their best style if left alone for several years, and most hardy plants require dividing or renewing every two or three years or they degenerate. This is recognised in the case of spring gardens, the plants for which are more generally cultivated than the later-flowering perennials. Gardeners divide and replant, or grow fresh from seed, their Daisies, their Forget-me-nots, their Pansies and Aubrietias, or they do not expect them to do well; and the same ought to be done with Phloxes, Michaelmas Daisies, and similar plants. Some gardeners recommend entirely renewing and replanting a border once in three or four years; but I think this a very bad plan. Hardy plants in a mixed border do not all reach the stage at which renewal is desirable or necessary in the same time. There will always be many plants, such as Lilies and other bulbs, which are better left alone, and a border generally looks untidy the first year after such a renewal. Sometimes the encroachments of weedy plants, like the Japanese Anemones, may render a clean sweep necessary, but it is far better to assign to such plants their proper bounds and to confine them within these. I never dig my mixed borders, and venture to say that they never ought to require digging. Every time a plant is placed in the border

the soil is dug, and, if necessary, renewed round it, but no general digging is allowed.

Some store beds, more or less according to the size of the garden, are necessary, and in these a constant succession of young plants must be kept to replace those which are past their best. As for the frequency with which each plant is to be renewed, it is impossible to give any general rule. Not only must the habits of each plant be studied and watched, but the kind of soil makes a very great difference. Generally plants increase and arrive at their best, and degenerate and wear out themselves or the soil, far quicker in a moist and rich soil than in a dry and poor one; and plants, which in my garden cannot continue to flower well for three years if left to grow, will go on without any deterioration in a lighter soil for more than twice that time.

Let us begin with Phloxes. Those who grow them as florist flowers give special rules for their cultivation, which are, perhaps, too troublesome to follow for those who only grow them for mixed-border decoration; but we all wish to have what we grow as fine as we can, and Phloxes may be kept fine with very little trouble. Unless spring cuttings brought on under glass are grown the rooted side shoots taken off in September make the best plants; but if none of these is to be found, divide the plants in October and select a single well-rooted thin stalk with four or five shoots. These may be planted as close as convenient in a store bed for a year. Phloxes are so hardy that they may be transplanted any time during the winter. When you have the time dig up as many old and crowded plants as you have new year-old plants to replace. It is better not to put them in the same spot in which a plant of the same kind has already grown, unless the soil is renewed; but do not enrich it too much for Phloxes. I used to think they liked plenty of manure, but they became so succulent and sappy that the bark of the stalk would split. A top-dressing when they come into bud is the best way of manuring them. I advise that one-third of the Phloxes in the borders should be annually renewed. The finest heads of flowers are generally on the two-year-old plants.

Asters require the same treatment, except that amongst the many scores of varieties there are some weak and slow growers, which experience will discover. Others increase so fast that if not annually divided they over-run the border, and even some of the best kinds are amongst these rapid growers. These do not require any nursery bed to rear them, but may be divided and replanted at once, pulling the stalks asunder in October, and replanting one or two stalks according to the number of shoots they bear; but by all means let the soil be dressed. Friends give me Asters which in a year's time they cannot recognise from their increased size and improved appearance, because I give them real cultivation, which they have never done. Few plants respond to liberal treatment and attention better than perennial Asters.

The Monarda is a plant which is accustomed to die quite out if left alone, and yet a piece the size of a square foot is enough to fill a garden in a year if properly treated. A small rooted piece with three or four shoots planted in rich new soil in October will make a grand show in the following July.

Spiræas are the easiest of all plants to divide, as they may be cut with a spade into well-rooted clumps and never seem to feel the operation; but such plants as the double S. Ulmaria

(common Meadow Sweet), if left alone, become after two years so hopelessly clubbed as to produce nothing but mildewed stalks.

No plant after being divided and replanted is worse for a top-dressing of leaf soil. Upon some the effect of it in promoting vigorous growth is surprising. A few years ago, when the Japanese Anemones were not so common as now, and I wished to increase them, I covered their crowns in autumn with 2 or 3 inches of leaf soil a year old. I soon had them to give away by the sackful.

I have spoken of plants which are the easiest to divide, and which are divided more to protect them from overgrowth than to make new stock. Choice plants which it is desired to increase should generally be divided earlier in autumn. The worst time to divide a choice plant is when it is at rest, and the best time in most cases is before its leaves begin to show signs of turning. *Anemone narcissiflora*, *Jeffersonia diphylla*, and some of the choicer *Geraniums*, must be cut with a knife; but if green leaves and a piece of hard rootstock can be given to each division I find they will always grow without any recourse to flower pots, frames, or handlights. Coconut fibre and leaf soil mixed in the compost, shelter from sun, and regular watering, will generally ensure success. I repeat that different treatment suits different plants, and it must be found by experience what this treatment is.

Few things in gardening are more important than knowing how to increase plants. When I get a new plant I am never satisfied till I have found out how I can make two of it, and I have seldom failed. Of course there are many biennials and some perennials which are more easily and conveniently raised from seed than in any other way, and nothing need be said about the propagation of plants of this kind.—C. W. Dod.

SELECT PEAS.

IN making a few observations on varieties of Peas grown here during the past summer I will for simplicity arrange them in three classes—early, medium, and late.

Day's Early Sunrise, William I., American Wonder, Laxton's Alpha, Maclean's Little Gem, Dickson's First and Best, and Suttons' Emerald Gem were the early varieties selected for trial. The last-named variety has not been very satisfactory during a four-years trial. Alpha, First and Best, and Little Gem are tried varieties; the latter is very good in flavour for an early Pea. William I., though perhaps not so early by a day or two as some already named, is superior in flavour, and such an abundant cropper that it is entitled to rank amongst the best of early Peas. Day's Early Sunrise sown and gathered on the same day as Alpha grew 5 feet high, and produced at least one-half more Peas of decidedly superior flavour to that variety. American Wonder was undoubtedly the earliest Pea grown here. It has large well-filled pods of excellent flavour; it is, however, very dwarf, and is perhaps better adapted for pots. While it is difficult to say with certainty what is really the best, were I confined to one early Pea I should choose Day's Early Sunrise.

Having a desire to test which really were the best, a larger number of varieties of main-crop Peas than usual were grown, and in naming them I will simply notice what I have proved to be good. G. F. Wilson is a well-known Pea of excellent flavour; Electric Light, an abundant cropper; President Garfield, equal to the above as a cropper, superior in flavour, and likely to become a favourite; Dr. Maclean, one of the best; Maclean's Best of all is another very good Pea.

Telephone and Telegraph were grown side by side. The difference between them is not sufficiently great that they need both be grown in one garden. I prefer Telephone—it is in my opinion one of the very best if not the best Pea that has ever been sent out; Stratagem for quality and exhibiting is the best Pea I know, but it is not so bountiful a cropper as Telephone. The following were also grown:—Laxton's Supreme, Edinburgh Beauty, Dean's Dwarf Marrow, Kinver Marrow, and John Bull.

The late Peas were Veitch's Perfection, a good old sort, rather subject to mildew here. Walker's Perpetual Bearer is a new Pea of branching habit, a good cropper of great merit, and likely to be further heard of. Culverwell's Autumn Giant Marrow was raised, as the name indicates, by Mr. Culverwell, at Thorpe Perrow, and is, I believe, considered by him to be the best Pea he has raised. It grows here to a height of 8 feet, is a heavy cropper. Many pods on our plants this season had eleven and twelve large-sized peas. It is excellent in quality, but with us it

requires longer time to fill than any Pea I have tried; it does not commence bearing early. It was said to be a good exhibition Pea, but is not likely to win in the company of Stratagem or Telephone. Yorkshire Gem is a good late Pea, and so far has proved free from mildew. Omega is another excellent Pea, far too little grown; this is one of the best flavoured Peas I know. Ne Plus Ultra only needs to be named, being perhaps the best of our late Peas. The Prince is the hardiest and latest Pea, but is not easily obtained true to name.

While it is difficult to make a selection, as Peas do well on some soils and not on others, I would venture to submit six varieties that I feel sure would disappoint no one—Day's Early Sunrise, Telephone, Stratagem, Omega, Veitch's Perfection, and Ne Plus Ultra.—J. S., *Darlington*.

PLANTING ROSES IN AUTUMN.

WE have witnessed many revolutions in the culture of the Rose. We have, for instance, come to almost discard the standard (by this I mean those who really regard themselves as rosarians) for the dwarf. There will be always a number of persons who will grow standard Roses; but Rose-growers have come to regard the standard as ugly, expensive, and liable to be injured by frost to a far greater extent than the dwarf. We have come again to regard the Tea Rose as not nearly so delicate as we used to think. We have also to a great extent come to think hard pruning to be the proper way to treat the Rose, and instead of trussing to obtain symmetrical bushes, to cut down to within a couple of eyes of the root, and to depend on the strong shoots that are thrown up instead of the shoots of last year pruned back; and even in the case of Teas we have come to think that is the better plan. It used to be said, Merely shorten the tips; but personally I can bear witness to the fact that of two beds, one of which was treated on the old plan and the other pruned hard, that the latter were more satisfactory than the former and gave a larger quantity of bloom and for a longer time.

We now come to a matter which has, I think, to be ventilated, and that is whether the autumn is the best time for planting Roses; and I am induced to set the ball a-going in the hope that some of our experienced, and I may add scientific, growers will take it up. The question has suggested itself to me for two reasons. A discussion has been going on in the columns of a contemporary, originated by Mr. D. T. Fish, as to "Root-Disturbance in Autumn," and the pros and cons have been very ably stated; the one side maintaining that there is little root-action in autumn, that the ground is cold and wet and does not foster the growth of roots, and that consequently it is better not to disturb Roses then, and that they should be left alone; the other defending the practice, the former I think having decidedly the best of it. If this statement be correct it must surely have a great effect upon the present practice of planting out Roses now. There seems to be a good deal of reason in it, especially after such a season as this, when so much rain has fallen. The ground is sodden, wet, and cold—(perhaps our friend Mr. Mawley would tell us what the ground temperature a foot below the surface is)—and can be hardly conducive to the formation of roots. How would it, then, answer to get your Roses in from the nurserymen as usual and lay them in until February, get the beds all ready for planting, and then leave them until that time? It would be far easier to cover the Roses and protect them from injury by frost; and let it be remembered, too, that in other plants a change as great as this has been made. We used to be told to transplant Laurels, Hollies, and all evergreen shrubs and trees in autumn; but now the practice is altogether changed, and we are told that August is the best time for transplanting them. This is one reason for my asking the question. Another is, that when I was admiring some of those boxes of lovely Teas exhibited by Mr. Prince, he said to me, "Those are from plants that were only planted this spring, and which were in truth the refuse of my sales." Now if this is the result of spring planting of Teas, why not of Hybrid Perpetuals? I can see no reason why it should not be so, and I am quite sure if the practice proved to be sound it would be a great boon to many of us. It is disheartening to plant a new bed and then to find that there are gaps in it which we are inclined to attribute to the frost, or perhaps to the original badness of the plant, when it may have been that the coldness and damp of the ground had checked all root-growth and made the plant more liable to injury.

I perhaps need hardly add that I do not write as a botanist. My vegetable physiology may be all wrong; but I am by no means discouraged by this, for I have ever found that on most scientific subjects there are two sides. We get the most elaborate and convincing arguments in the high *cathedra* style, and we are in our ignorance inclined to say this must surely be right; but, lo!

"his neighbour cometh and searcheth him out." We get the most convincing arguments that A was all wrong, and that when B propounds the very opposite he equally avers that he only is right. One man says Nature is immovable in her laws, and that all we have to do is to observe and give heed to them, as there can be no exceptions. Then comes out another who says that there is no law of physics, not even the law of gravitation, without great and growing exceptions, "and that, therefore, the boasted accuracy and permanency of so-called physical laws and theories is unfounded."—(Dr. Andrew Clarke.) To me, therefore, experience would be much more satisfactory than theory, and one such fact as that I have recorded in Mr. Prince's experience is worth a bushel basket of theory. But let all have their say, and I am very much mistaken if most valuable matter may not be obtained on a subject which I cannot but think is of considerable importance.—D., Deal.

ALNWICK SEEDLING GRAPE.

I HAVE sent you a bunch of Alnwick Seedling Grapes, together with a small piece of Gros Maroc and Alicante, grown in the same house under the same conditions. My experience, which is limited to one Vine of the first-named variety, is so very opposite to that recorded in the Journal of the 19th ult. that I will briefly state what I have to note.

This Vine of Alnwick Seedling was planted in March, 1880. I did not attempt to fruit it the first season, but expected to have a few good bunches the second year. Hearing of its shy-setting character I attempted to fertilise it, but failed. The house is a span, running north and south; it is 50 feet long, 20 feet wide, with one row of 4-inch piping all round. This spring, thinking an additional rod would help the Vine, I let a young cane extend 16 feet. To-day I measured it, and find it 2 inches in circumference—a very good serviceable rod. The Vine showed bunches well at every lateral; I pinched all off but ten, and when they should have been in flower I tried fertilising with pollen from Lady Downe's and Black Prince, but failed; nor do I see how the pollen is to reach the pistil, owing to a mass of jelly-like substance which covers it. I also left some bunches of the second crop, which were freely produced, but these did not set, as I had no pollen from another variety to apply; but I noticed very particularly there was the same fault as I note above. I was so disappointed that I cut the second crop as soon as they were past setting. I left some of the first crop—half a dozen bunches, the same as I send you, just to see what they would come to. You will note by the pieces of the two other varieties that the house will grow Grapes. Lady Downe's in this house does not do at all well, taking the Alicante as a standard.

My opinion of the Alnwick Seedling is that it requires more heat; still, as I did not use the Alicante pollen I should very much like to hear what other correspondents may say on this point. I have selected a position in the Muscat house for this Vine, but as this has now two large rods I feel reluctant to move it. Believing there was a deficiency of lime in the soil I specially selected this as a test plant with Alicante; the latter benefited very much by a heavy application of lime, but none was given to the Gros Maroc. I have seen one Vine of the Alnwick Seedling in this neighbourhood, and this was very little better than my own. The foliage of this is very beautiful now.—STEPHEN CASTLE, *West Lynn, Norfolk*.

[The bunch of Alnwick Seedling is a very good one, but only half a dozen berries attained their full size, some two hundred others resembling Black Currants. In this Grape, like the Morocco and the Muscat of Alexandria, the stigma has a tendency to exude a globule of liquid, which so effectually protects its tissue from the influence of the pollen that the ovary is not fertilised. This liquid exudation must be dissipated by agitating the Vine, or gently drawing the hand down the bunches, before pollen can effectually come in contact with the stigma. The exudation referred to is usually greatest in a low temperature, and we question if sufficient provision has been made for affording the requisite temperature for either this Grape or Lady Downe's without overheating the pipes. The Alicantes are very good in appearance, but would have been better in quality with more heat; and the berries of Gros Maroc are very fine, but not well coloured, nor so good in quality as we have frequently tasted this Grape. Lime would probably benefit this Vine, and more heat improve them all. We do not consider one row of pipes sufficient in such a house for growing late Grapes.]

FLOWERS IN AUTUMN.—Now that autumn has come, and with it the various-tinted leaves, we still have a few of the old-fashioned favourites in our borders to cheer us. *Anchusa italica* is still in full

beauty; its lovely blue flowers have a fine effect. *Centropus gracilis*, with bright orange ray florets and a black centre, is one of the finest of our late-flowering plants. *Jasminum nudiflorum* near a wall is beginning to unfold its yellow blossoms, and will afford us a display through the winter. *Erinus alpinus*, a lovely edging plant, is still in full beauty, and likely to be for a length of time invaluable for rockeries and edging. I prefer the rose-coloured to the white variety, but they are both beautiful. *Helianthus diffusus* and *H. multiflorus* are doing good service. *Delphinium cashmerianum* is a useful autumn flower from seeds sown in early spring, grown on in pots, and planted out in summer. Varieties of *D. consolida* of many colours are now very beautiful. *Salvia patens* is making a fine display. Then the charming *Aster elegans*, *A. Tradescanti*, *A. dumosus*, *A. trifolius*, and hosts of others, are charming. *Erysimum pulchellum* is commencing to flower; its pretty sulphur-coloured blooms are very pleasing. *Aubrietia deltoidea* will be in full bloom in a week or two, and will continue through the winter. The two varieties of *Rosa Lawrenceana*, used as an edging, are giving us a fine display of their lovely flowers; they deserve extensive cultivation. Another old favourite that I cannot dispense with is *Rosa semperflorens*, always welcome. *Primula farinosa* seems to have made a mistake; it is flowering now, and is very beautiful. I use it as an edging plant in the spring garden. The double sulphur-coloured Primroses are coming into bloom. The Alpine Auriculas are also throwing up their trusses, and some have already opened their flowers.—NORTH YORK.

THE GREENHOUSE AND ITS INMATES.

POPULAR FLOWERING PLANTS.

IN the enumeration of species and varieties suitable for cultivation in small greenhouses I have endeavoured to include only those which may be truly termed popular. Large numbers of plants suitable for greenhouses are in cultivation, and it would be an easy task to fill a volume with their names and the cultural requirements of each; but it is not so easy to write a short treatise such as this is, for it is difficult to decide which should be omitted and which included: but the following selection includes most of the plants suitable for an amateur cultivator. At the same time there are many others to choose from, although their claims have been set aside for the present.

ABUTILONS.

These are showy easily grown plants. They may be raised either from cuttings or seeds. Cuttings strike readily at any season of the year when there is heat enough to keep the plants growing, and seeds should be sown in spring. Possibly the best time to insert cuttings is about the month of August. If this is done the cuttings will root and be established before winter comes, and the plants will be ready for potting in spring, when they will commence growing, and flower as long as growth is maintained. Varieties do not come true from seed, but new kinds are raised in that way.

Abutilons grow very freely, and are by no means particular as regards soil. Ordinary loam with a little decayed manure and a sprinkling of sand suits them admirably. They may be grown as climbers or into large plants by shifting on and pinching and staking as may be needed. After the pots are full of roots liquid manure benefits them greatly. An occasional syringing is necessary to prevent small white aphides attacking them. Scale is also liable to be troublesome, but is easily disposed of if attacked directly it appears. The following varieties are good: *White*, *Boule de Neige*; *Yellow*, *Boule d'Or*; *Red*, *Darwinii elegans*; *Rose*, *Rosæflora*; *Variegated*, *niveum marmoratum* and *vexillarium*. The last-named is very beautiful in the form of weeping standards, which are obtained by grafting on stocks of the tall-growing varieties.

ACACIAS.

Acacias are very easily grown greenhouse plants. Soil composed of half loam, half peat, and a little sand suits them. After they have flowered they may be advantageously placed outside in the full sun with their pots plunged in ashes for the summer months. There are numerous species. For a neat-growing specimen *A. armata* may be recommended. As a climbing kind to furnish neat sprays for indoor decoration *A. Ricciana* is worth notice, and the early-flowering *A. platyptera* should be also grown.

AGAPANTHUS UMBELLATUS.

The Agapanthus, or African Lily, is a good old-fashioned plant which anybody can grow. It may be had in small pots, say 8 inches in diameter, or it can be grown into large specimens. It roots strongly, and delights in strong loam and manure. In summer it should be placed outside and supplied with plenty of water. In winter it requires protection from frost, and not too much water. Large plants may be cut into small pieces with the spade, and potted with the certainty of their doing well. The

ordinary type is blue, but there is a white-flowered form and one with variegated leaves.

APHELEXIS.

These require to be grown in a compost of fibry peat and sharp sand, with a little leaf soil; or some prefer light turfy loam with sandy peat, and this is preferable if the drainage be good and a few pieces of charcoal be mixed with the soil. Great care is needed in watering these plants, as the slightest excess of moisture or a corresponding deficiency will produce most unsatisfactory results. After potting the plants should be kept in a rather higher temperature than usual for a short time until root-action has recommenced, occasionally syringing them lightly, but giving little water until it is seen that some advance is being made. Shading will also be then necessary for a time, though afterwards the plants must have as light a position as possible. During the summer a cold frame will be a suitable place; but in the winter, if there is no house specially devoted to hardwooded plants, the warmest position in the greenhouse should be assigned them. They are very useful, as the flowers last so long, and they are greatly valued for exhibition, as fine globular specimens can be readily obtained with ordinary care in the culture and training. The species and varieties in general cultivation are not very numerous, but the following four are the best known:—*A. Barnesi*, bright rose; *A. humilis grandiflora*, purplish rose; *A. macrantha purpurea*, rich purple; and *A. macrantha rosea*, of a pale but pleasing pink hue.

AZALEA INDICA.

This is a general favourite, and rightly so, for few hardwooded plants may compare with it. It is of easy culture, but nevertheless not many amateurs succeed with it. The chief reasons are that the plants are generally starved and rootbound or potted in unsuitable soil, and the foliage is allowed to be overrun with thrips. The best compost for Azaleas is peat and sand—good fibry peat, with a sprinkling of sand to keep it open. Peat may have to be purchased, for any kind of peat will not do, and it is rarely that good peat is to be obtained otherwise, more especially by urban growers.

The season for potting is just after flowering, or when new shoots start. Of course potting is not needed unless the pot they occupy is already full of roots or soured through over-watering. In the latter case it may be necessary to remove as much soil as possible without injuring the roots too much; in the first case the removal of the crocks and any loose soil will be quite sufficient. Too large shifts should not be given, for the new soil may become sour before the roots take possession of it, in which case they never will succeed in it. From a 6-inch to an 8-inch and from an 8-inch to a 10-inch pot are quite sufficient.

In potting Azaleas it must be carefully observed that the ball is not dry, or there will be no possibility of moistening it thoroughly afterwards without wetting the new soil far too much. It is therefore necessary to examine the plants twenty-four hours before potting takes place, and to steep them if dry for an hour or two, and then allow the ball to partially dry before potting. The new soil must be rammed quite as firm as the old ball. Hardwooded plants which have fine hair-like roots and are potted in peat are very liable to be injured, and in thousands of instances killed, through the neglect of the simple precautions I have endeavoured to explain.

After potting the plants must be placed in the greenhouse again, or in a warm structure if such be at command, a night temperature of 50° being maintained. At sunset or before, light syringings of tepid water will be very beneficial. Indeed, amateurs should begin not later than the middle of February to keep up such a temperature just for the sake of forwarding the Azaleas as well as for enabling spring bulbs—Hyacinths, Tulips, &c.—Primulas, and other greenhouse plants, to assume their best character. It is quite necessary for the Azaleas, as in greenhouses where frost is excluded and no more, they make their growth so late in the season that they do not ripen nor the flower buds set, and the consequence is a poor display of blooms. Where Vines are being forced these plants will do well, but I do not advise placing them in vineries, for they are very apt to introduce thrips and other insects.

By midsummer, after the buds can be felt between the finger and thumb, the plants may be placed out of doors with much benefit. The pots should be half plunged in ashes to prevent the sun scorching and unduly drying the roots. I recommend ashes because worms will not readily crawl through them into the pots. If worms enter pots the balls should be inverted into the hand and the worms removed. Lime water will dislodge them from ordinary plants, but lime water is injurious to hardwooded plants generally, and for none more so than Azaleas. Liquid manure may be occasionally given to root-bound plants.

Thrips are the great pest of this plant. Syringing with soft-

soap water will prevent its appearing, and hard syringings with water at a temperature of 140° and with a little softsoap in it will effectually wash them off if they appear. Tobacco water will also eradicate them. The thrips must be kept down, or healthy plants cannot be had.

Bush form is the simplest and most natural form for them, and for one unaccustomed to the intricacies of training is the best that an amateur can adopt; but pyramids are the favourite shape into which they are trained. The way to form a pyramid is to insert a stout stake the desired height in the centre of the pot; two cross stakes are fastened across the mouth of the pot to this central stake and to a stout cord tied under the rim of the pot; then a ring of copper or galvanised wire is fastened to these cross stakes of the desired width, and small wires taken from the rim of the wire and fastened to the top of the centre stake. To these wires the growth is trained.

The names of half a dozen kinds are appended, to which the cultivator may add after a little experience has been gained. The varieties are almost innumerable, but the following are good:—*Duchesse Adelaide de Nassau*, *A. Borsig*, *Iveryana*, *Flag of Truce*, *Punctulata*, and *Reine des Pays Bas*.—J. H.

THE FORMATION OF DEW.

I HAVE read Mr. Taylor's book on "Vines at Longleat" with great pleasure and profit. It carries to one's mind the word "thorough" in a very remarkable way. No labour too great to achieve the end in view; a genuine scientific spirit; patient keen observation; seeking out of cause and applying remedy, lightened up not a little by touches of real humour.

Before it passes to further editions there is one point which it might possibly be worth Mr. Taylor's while, to use an awkward phrase, to reconsider—namely, what follows on page 60 the words "The dew is caused in the following way." Our friend is perfectly right in his observations on page 61 that it is the "rapid evaporation which causes the complete chill," by what is known as the immense quantity of "latent" heat taken up during evaporation; but the cause of the original deposition of the dew is not, I think, precisely what he says.

The whole theory of dew was first pointed out by a Dr. Wells in a most interesting pamphlet, published, I think, thirty or forty years ago, which I wish I had to send to Mr. Taylor, but I will try and explain very briefly what I can of it; and it may be shortly stated by the broad fact that hot air can hold more moisture, invisible, than cold air, and that as the cooling process goes on the air becomes saturated—i.e., can hold no more invisible moisture, but must deposit it or make it apparent in the form of fog, &c. If there is anything colder than the air itself, then dew is deposited on that substance. This is easily tried. Bring a tumbler of cold water, iced if possible, into a warm room; the tumbler chills the air round it below the point called the "dew point," at which it is saturated, and the moisture is condensed on the glass.

Now it seems to be a provision of Nature that plants have large powers of absorbing heat, and apparently a somewhat equivalent power of radiating—getting rid of it—also; doubtless the last to attract dew to refresh and invigorate them, as Mr. Taylor points out, and which power seems to be, as he says, in proportion to the vigour of the plant.

Well, to return to Mr. Taylor's house, which, as he says, is getting cooled during the night—that is, the air is approaching more or less to the point of "saturation." It is not the rise of temperature caused by the sun coming out which causes the dew to deposit on the Vines, slates, &c., because any rise of temperature must infallibly cause an increase in the moisture-carrying capacity of the air before it can cause much moisture to be evaporated from the ground in the house, or anything in the house; but it is the radiating power of the plants and other substances which have, so to speak, chilled themselves, and thus previously caused the air to deposit dew on them, just as on the artificially chilled tumbler. I think that just before sunrise a distinct and sudden drop in the temperature often takes place, and probably the dew may be largely deposited at this time, which may have led Mr. Taylor to speak of it as being caused by the sunrise.

The point is so small it may not be worth while troubling Mr. Taylor at all about it, but theoretically the cause of dew-deposit is an interesting one to gardeners, and he would, I am sure, be interested in watching a dry and wet bulb thermometer, by which the dew point can be at any moment calculated, and the amount of moisture in the air approximately seen at all times.—W. Y.

NOTES ON PEARS WANTED.—Have any of your correspondents any personal knowledge of the following Pears? Early and mid-

season sorts :—Duchesse de Brissac, Frederic de Wurtemberg, Buerré Lebrun, Soldat Laboureur, Grégoire Bordillon, Buerré Baltet père, Buerré Dubrusson. Late varieties :—L'Inconnue, Maréchal Vailant, Emile Herpin, Bezi de St. Waast, Hébé, Madame Bonnefond, Madame Hutin, Marie Guisse, Lydia Thierard, Louis Vilmorin.—J. E.

LIFTING PEACH AND NECTARINE TREES.

I REVERT to this subject once more because Mr. Iggulden has thrown some light upon it in his last remarks ; but I am surprised when he knew the surface soil was in such a fertile state that he should place it at the bottom of the border.

My principal object in writing was to point out the waste of labour and material in making unnecessarily deep borders for Peach trees. Borders 18 inches deep are sufficient for trees with a spread of branches 30 feet, and from which good crops of fruit of first-rate quality can be produced. Mr. Iggulden does not object if the borders are deep, but that does not answer the question I asked. What are deeper borders needed for ? To keep the roots of his trees near the surface is Mr. Iggulden's object, as it is of

most cultivators ; and by what means can this be accomplished better than by annual lifting ? When trees are frequently lifted the operation is neither laborious nor expensive ; in fact, lifting three trees in a house say 60 feet in length occupies no more time than top-dressing the border, and is not more expensive. New soil is not needed every time the trees are lifted, for, as I said on page 326, the soil removed in lifting could be returned if in a fertile state. Annual lifting is the means of producing abundance of fibres, and the trees subjected to it would be in a better position in this respect than by a three-years lifting system and the addition of "brick ends," which are the rubbish to which I alluded.

Your correspondent is wrong in saying lifting is "to a certain extent risky." When done annually there is no risk attending the operation. Not a bud will fall from the trees, scarcely a fruit in stoning, and I have never lost a crop from any of my trees for several years since the annual-lifting system has been practised. Such appears to be the experience of Mr. Bardney (page 279), and Mr. Iggulden has referred in a contemporary to the success that attended the lifting of these trees. "S. N." also refers to

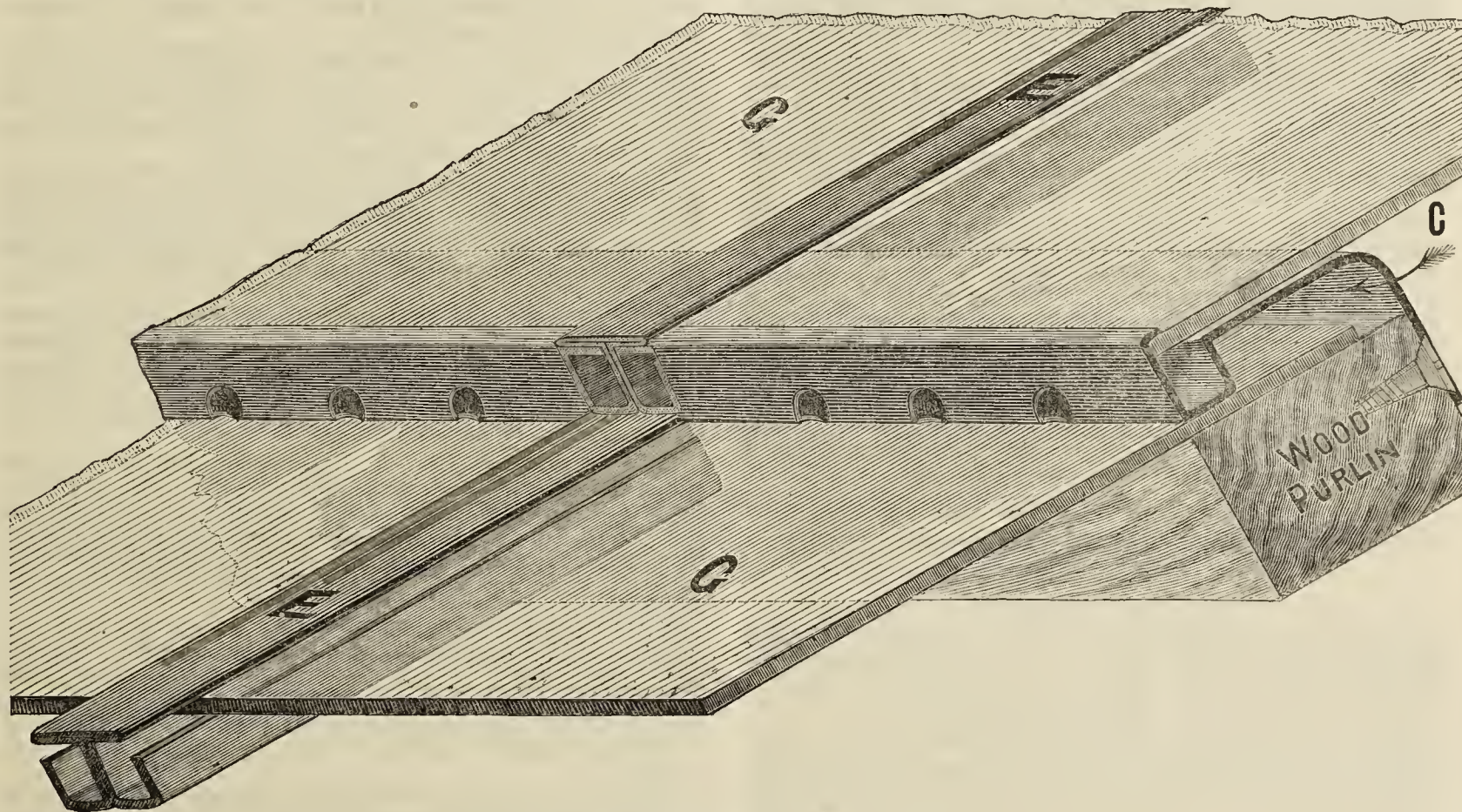


Fig. 65.—RENDLE'S ACME SYSTEM OF GLAZING.

the splendid condition of the same trees, and says, "Mr. Bardney thinks no more about digging up and replanting a Peach tree in July than of potting a Pelargonium." Surely he would not do this if the system was likely to be attended with risks or failure.

I have never seen nor heard before of Vines growing in the compost named by Mr. Iggulden, and therefore am in no position to pass an opinion about them. Perhaps he will give us more particulars, which I am sure will be interesting not only to me but many readers of this Journal.—A. B. C.

RENDLE'S ACME SYSTEM OF GLAZING.

INQUIRIES having reached us of late for information relative to this method of glazing roofs and for explanations as to the nature of the system, we submit from the patentees the annexed illustration, as without it the subject could not be satisfactorily explained, whereas it can now be easily understood. At C is the horizontal bar, designated the "Acme," which is screwed to the purline that supports the roof. This bar, as may be seen, is constructed with perforations, through which any moisture will pass that may have condensed on the inside of the glass. E represents the "Acme" vertical bar, forming the junction of two squares of glass. The grooves carry off any water that may penetrate at this joint to the next square below, and so on from square to square. They also form a sufficiently strong bearing for the glass, G. It should be added that the vertical bars are firm, yet moveable, and thus provision is made for repairing the roof in case of breakages.

As will be apparent, no external painting is requisite by this system, while the roofs are very light and undoubtedly durable. Were they otherwise they would not be adopted by Her Majesty's Government, railway companies, and others, while in a number of gardens the system answers admirably. In a letter before us Mr. Gilbert of Burghley says :—"Rendle's houses for plants and Vines continue to give me great satisfaction ; but to see the system well tested go to Ketton Hall. They are there perfect structures, and everything grows well under the roofs in charge of Mr. Woodfield." In Messrs. Rendle's book of testimonials we find one from the gardener first named, so clever in its way that we cannot resist quoting one of the paragraphs—namely, "The span roof for plants has been most useful, and four first-class certificates for double Primulas, all grown in the house, bear testimony to their great superiority." The superiority of what ? The Primulas or the houses ? Oh ! Mr. Gilbert.

RASPBERRIES IN AMERICA.—Mr. Parry, who has long been a very successful grower of the Raspberry, gave the New Jersey Horticultural Society a statement of some of the large profits obtained when this fruit sold at high prices. He said the best American varieties, with fair treatment, will generally yield as many bushels per acre as corn, and generally bring five times as much in market, and when once planted remain for several years. A neighbour of his sent to market a one-horse waggonload of red Raspberries, and received \$220 (about £44) for the lot. A lady living near him rented out her farm, reserving a portion for a Raspberry and Blackberry

plantation, from which she sold in one year 43,000 quarts of berries, worth, at eight cents a quart, \$2440 (about £480), which was more than the tenant made from all the other crops on the farm.—(*Prairie Farmer*.)

MILDEW ON PEAS.

I AM glad to see this subject being discussed by your correspondents, and I trust something will be found to reduce if not destroy this fungus, although I fear, after reading Mr. W. G. Smith's article, there is not much to hope for. I quite agree with "J. S., Ripley," that it is caused by drought and damp, the former more especially; but I think as a rule late Peas are sown too thickly, and when grown up they are like a thick hedge, and in consequence when heavy autumn rains come they hold the wet for a long time and mildew soon attacks them, which is not the case with thin rows, at least such is my experience, and as a proof of that I will endeavour to explain an instance. On the 1st of June this year I sowed two rows of Ne Plus Ultra 9 feet apart; the seeds soon germinated, but early one morning I noticed several jackdaws fly from my Peas, and I found a quantity pulled out of the ground. I watched for and shot two of the birds, which I placed on the ground some distance apart between the rows of Peas. I thought this would frighten the others, but it was not so, for the jackdaws watched me too, and when I was gone they would pounce down for a few more Peas. In a few days, however, I noticed that for a certain distance away from the two dead birds the Peas were not touched; so I had them transplanted to make up the rows as far as I could, and they were very thin, but, however, I decided to stake them. The Peas grew very fast, and by the beginning of September were higher than the sticks, which were quite 7 feet out of the ground, flowered well, and they have continued bearing a fine crop of Peas since. In fact my employers say they are the best they have had this season; yet on looking through the rows this morning I could not detect the slightest spot of mildew; but they are as healthy as I could wish, and this day (October 23rd) I gathered nearly a peck of full pods. On the other hand, I have two rows of Omega in another part of the garden that are very thick, and the inside and under growths are affected badly with mildew. In conclusion let me add that Ne Plus Ultra and Omega are in my opinion the two best late Peas we have.—F. H., *Oxon*.

THE MANURIAL VALUE OF PHOSPHATE OF MAGNESIA.

(Continued from page 388.)

I HAVE now to bring down the abstracts of field trials on different forms of phosphate of lime to the October number of the Journal of the Chemical Society for the current year. My last letter finished with those included to the end of 1881.

5. No. ccxxx., page 89. Manuring experiments at the experimental station at Göttingen, by G. Drechsler. Little reliance can be placed on the results, which were very variable. This variation was most probably due to differences in the soil, and also to external influences on the growth of the roots (sugar Beet), which influences produced a greater result than the manures. However, taking the results as they stand, precipitated phosphate appears to have been the most beneficial.

6. Page 90. The experiments undertaken by the Rochester Farmers' Club on a 2-feet deep sandy loam (subsoil chalk), containing N.=0.21, K₂O=0.08, P₂O₅=0.12 per cent., were made with the object of testing the value of various forms of superphosphate as compared with insoluble phosphate on the growth of Swedes. The maximum yield was obtained by the use of dissolved bones, the minimum by the use of finely powdered raw bones. Several of the manured plots are below the unmanured plots in yield.

7. Page 91. Bone meal, dissolved coprolite, coprolite powder, precipitated phosphate, &c., were applied in equal money value as manures on plots $\frac{1}{2}$ acre by J. W. Kimber. Dissolved bones produced the best, and powdered phosphorite the worst crop. That coprolite powder produced a better crop than bone meal is explained by the fact that the latter, being very light, great difficulty was experienced in introducing evenly into the heavy soil. The precipitated phosphate was heavy and lumpy, and therefore it was less active than superphosphate or dissolved bones.

8. Page 91. Experiments on Turnips by E. W. Prevost. The plots were $\frac{1}{8}$ acre, and were in two sets, both in triplicate. When the manures were applied in quantities containing equivalent amounts of phosphoric acid, the increase in yield over the unmanured plots was, in the case of insoluble phosphate, about 18 p.c.; in the case of superphosphate, about 29 p.c. When the quantities of manure added were of equal money value, then the

increase over the unmanured plots were respectively 30 and 53 p.c. Analyses of the roots showed that those grown under the influence of the insoluble phosphate, though smaller, contained less water and more sugar than those grown with superphosphate. The soil contained 9.4 per cent. chalk.

9. Page 91, by M. Märker. In reference to the yield of corn and production of straw precipitated calcium phosphate is equal in manurial value to superphosphates with an equal quantity of phosphoric acid. Potatoes and other fleshy roots, however, gave the largest yields with superphosphates.

10. No. ccxxxii., page 331, by A. Petermann.

	Produce in kilos per hectare.
1. Unmanured	34'830
2. Superphosphate	34'380
4. Precipitated phosphate.....	34'380
5. Unmanured	33'840
6. Leather meal and soluble phosphate.....	37'890
8. Leather meal and precipitated phosphate	35'910
9. Unmanured	32'940
10. Sodium nitrate and soluble phosphate.....	43'380
12. Sodium nitrate and precipitated phosphate	43'880

The latter manure produced by far the best results. The experiments were made in sandy soil.

11. Page 333, by A. Emmerling. Experiments on clayey, humous, and sandy soils with bone meal steamed and with bone meal dissolved. The results confirm previous experiments in favour of the dissolved bone, and show marked increased production in each case wherein the manure was used.

12. No. ccxxxiv., page 550, by Hoffmeister. The plots were $\frac{1}{30}$ morgen in size, and the manures applied in triplicate, 1 kilo of phosphoric acid being applied in each case. The results showed that reduced phosphates were as good in their action as the soluble phosphates in the soil, which was a sterile sandy soil, very poor in lime.

13. No. ccxxxv., page 653-4, by G. Brown. Turnips were grown in five different localities simultaneously. The author thinks that the superiority of bone or coprolite to superphosphate, shown in seven of the experiments, is perhaps exceptional, and may be due to the exceptional dryness of the season from August 5th to September 10th, 1880.

14. No. ccxxxvi., page 767-8. Experiments at the experimental stations of the Highland Agricultural Society, by A. P. Aitken. Roots in 1878. At Harelaw Swedes were sown, and at Pumpherston yellow Turnips. The dissolved phosphates produced more than the undissolved, the increase averaging about 10 per cent. Although the quantity is increased by soluble phosphates, the quality is not improved.

Barley, 1879. At Pumpherston the season was cold and damp, so that the ripening period was much delayed. Soluble phosphates produced an increased yield of grain over crude phosphates of 14 per cent, and the amount of straw was also heavier. The equality of yield produced by the superphosphates is to be remarked, whilst the yield of the crude superphosphates is very irregular.

Hay, 1880. At Harelaw the soluble phosphate plots gave an increased yield over the unmanured of 6-7 per cent.; the opposite was the case at Pumpherston, and here the after-action of the insoluble phosphates was noticeable.

Roots, 1880. The $\frac{1}{12}$ acre plots were sown with yellow Turnips (Pumpherston) and Purple-top Swedes (Harelaw). The manures were the same as before, with the exception of the addition of crude and dissolved euraçao phosphate in the place of sodium nitrate and bone ash. This year again showed the superiority of superphosphates to the amount of 20 per cent., and although the percentage of dry matter is lower, yet the total quantity is higher.

15. Page 770, by Krockner and H. Grahl. Insoluble and soluble phosphates with bone meal were employed. These appeared to have no appreciable difference with Oats, but with Potatoes the action of soluble phosphate and bone meal was very marked. With ammonium sulphate the best crop of Oats was obtained from bones, the worst from superphosphates.

16. No. ccxxxviii., page 993, by L. Grandeau. On a soil of low quality various crops were grown for eight years. Taking the mean yield of all the crops, it was found that precipitated phosphate is equal to superphosphate, bone meal is but moderate, and phosphorite is poor in its action.—INQUIRER.

LIFTING AND STORING BEETROOT.—It is not safe to leave Beetroot out in the open after the end of October, for if frost comes it may be injured, and then it will not keep well. The first day when the leaves are perfectly dry should be selected for lifting it. When the plants are drawn up without the aid of a fork sometimes the bottom part of the root is left in the ground, and this allows the juice to

escape, which should not occur, as the main point in preserving Beet-root is to keep them whole, as bruised or broken roots lose their colour as well as their qualities. The roots when lifted should be laid on the ground to dry; then cut off their tops, but not too closely, for the same reason as we would avoid breaking the roots. In storing them the best way is to place them in layers in a cool shed or cellar, with a small quantity of sand between each. In a month or so hence they should be examined to see if any are decaying, and after removing these the others may be put back again in the same way. This may be repeated as it may be required, and in spring all growths on the crowns should be rubbed off.—A KITCHEN GARDENER.

NOTES ON POTATOES—THE CROPS IN IRELAND.

THE season that is now almost closed, as far as the crops are concerned, has been a strange one. It has been very wet and in a great measure sunless; yet notwithstanding the farmers have abundant crops of all produce except the Potatoes, which, although about half a crop compared with last year, are quite up to the average of the ten years previous to 1881, which year was said to yield a crop equal to those before the failure in 1847.

Amongst farmers here very few varieties of Potatoes are grown. The Scotch Champion has ousted all the Roeks, red and white, and last year was almost ousted itself by the Skerry. The good qualities of the Champion were not at all appreciated last year, as it grew strong and very many were hollow in the centre. Tons of them were sold in our local market for as low as from 1s. 5d. to 1s. 8d. per cwt., and these were for stock-feeding, very few were for culinary use. This year the Champions are being sold at from 3s. 6d. to 4s. per cwt. The Skerry resists the disease quite as well as the Champion, but if not allowed to come to maturity the tubers contain little starch. This year both were cut down in July—the Skerry not more than half-grown at the time—therefore it has lost its high place for favour this year. This early cutting has been most favourable to the Champion, for the tubers are a convenient size for the table and contain plenty of starch.

The season 1881 was not at all what might be called a dry one; yet the rain during the Potato growth was not excessive—just enough to keep them growing, never at any time saturating the soil, and, besides, the atmosphere was clear of fogs and mists. Fogs and much rain, I am convinced, are the chief causes of the Potato disease. I do not pretend to know the origin of the Potato failure, but I am sure from experience that it is now increased by wet foggy seasons; and, as I stated in this Journal years ago, it is only those Potatoes that have stout haulms and strong constitutions that can stand against such seasons. If the Skerry and Champion escape till about the 1st of September the haulms are strong enough to resist disease; but this year it came on them when they were very soft about the 12th of July. Still, although the Skerrys are small there are very few diseased tubers, even fewer than amongst the Champions; the latter have at least 20 per cent. bad tubers. The Magnum Bonum has only a few diseased; it is not generally known. I recommended it to my employer. We procured it, and it has proved very satisfactory. It has three valuable qualities—viz., it is a good cropper, cooks well, and is disease-proof. It deserves a place in every collection, and must force its way as a standard variety; but I think its shape is against it, most people being suspicious of kidney-shaped Potatoes.

The early varieties all surrendered to the disease at once, and as they are nearly all of the soft-haulm sorts they were much diseased. We have a variety which is grown amongst the early sorts, but is only a second early. It resists the disease remarkably well (proving my theory), having strong fibry haulms. The tubers are reddish, large, a good cropper, and good quality. It is named Wonderful.

I have the brightest hopes for the success of the Potato crop, and, one year with another, shall always have a crop with such varieties as we have, and even better ones I expect to come forward yet; so that with such a good, abundant, and early cropper as Myatt's Prolific to be out before the disease comes on, and such late varieties as I have named above able to resist the disease, we have little to fear.—B. G., Co. Down.

SEWAGE, SOOT, AND ASHES.

I WAS glad to see recorded on page 383, under the above heading, the experience of Mr. J. Taylor, for I also rely greatly on sewage water and soot for fertilisers, though, thanks to paraffin not being used, I have not suffered. I feel sure Mr. Taylor has found out the true cause of his failures, and has done a public service by bringing it under the notice of the readers of the Journal. I have on many occasions seen both butler and footman throwing the waste colza oil down the drains, and have often

wished it could have been seen by a more important person. Then the thought has occurred to me of what is to be done with such waste material. For my part I would like it to be disposed of in the ashpit, as my ground, being of a light nature, I only require the ashes for the paths, the cinders being used in the stokehole; in fact, I have asked that all broken glass and such-like stuff may go there to be run down to elinkers, which are of some service, while broken glass with me is abominable.—J. S. A.

NOTES ON THE ROSE ELECTION.

I DO not know when I have been more interested than with the two numbers of the *Journal of Horticulture* containing the Rose elections. The first six varieties of Hybrid Perpetuals are almost exactly as I should have placed them, but I should place Louis Van Houtte, E. Y. Teas, Marie Finger, and Abel Carrière higher in the list than the positions they occupy. I was surprised to find Felix Genero without a place, as it is a Rose which produces as large a proportion of perfect blooms as any I know; perhaps it is not of a fashionable shape. I am delighted to find Catherine Mermet at the head of the Teas, as it is a very old favourite of mine—in fact, except Gloire de Dijon, the first Tea-scented Rose I possessed.

Since writing the above I have received another most interesting Journal. I see that all the Roses I have mentioned get promotion in Mr. Ellwanger's list, but he puts Charles Lefebvre and Etienne Levet very low. I should have thought Madame Lacharme suited to the American climate.—A NEW READER.



THE annual meeting of the PELARGONIUM SOCIETY is announced to be held at South Kensington on Tuesday, November 14th, at 1 P.M. On the same day the promoter of the proposed Pink show will arrange a few preliminaries.

— AS a consequence of the high tides and floods MARKET GARDENERS IN THE VALLEY OF THE THAMES have suffered considerably, much land being under water and the crops in danger. One grower is said to have nine acres of Celery flooded.

— AN Oxfordshire correspondent writes:—"I have studied with much interest Mr. Iggulden's excellent article on varieties of Peaches and Nectarines. He must have overlooked the SALWEY PEACH, an excellent late variety. With us it has ripened with a most delicious flavour. It cannot be relied on if the autumn is dull and sunless."

— A GARDENER submits the following as his ESTIMATE OF LANTANAS:—"These plants are rising in popularity, as they are easily propagated, grow freely, bloom profusely, and the flowers are exquisite in shape and beautiful in colour. As seen in full bloom planted in flower beds or growing in pots they are most attractive, but their odour is most disagreeable."

— THE following are the fixtures of the ROYAL BOTANIC SOCIETY for 1883:—Spring Exhibitions, Wednesdays, March 28th, April 25th. Summer Exhibitions, Wednesdays, May 16th, June 13th. Evening Fête, Wednesday, June 27th, 8 to 12 P.M. Promenades, every Wednesday from May 2nd to August 1st, excepting May 16th, June 13th and 27th. Lectures at 4 P.M. Fridays, May 4th to June 22nd. General Meetings for election of new Fellows, &c., Saturdays, at 3.45:—January 13th, 27th; February 10th, 24th; March 10th, 24th; April 14th, 28th; May 12th, 26th; June 9th, 23rd; July 14th, 28th; November 10th, 24th; December 8th. Anniversary, Friday, August 10th, at 1 P.M.

— THE CHRYSANTHEMUMS AT THE INNER TEMPLE have improved surprisingly within the past week, and Mr. Newton now has a very pretty display, the flowers abundant, bright, and of clear colours. Of the new varieties recently noted Lord Beacons-

field was referred to as being particularly good, but its characters having now more fully developed, it may be observed that its appearance is somewhat spoiled by the florets being strangely infolded towards the centre of the flower.

— A CORRESPONDENT writing in reference to the INCREASED CONSUMPTION OF TOMATOES in recent years observes that "Though these fruits are so much more largely consumed now than they were ten or even six years ago, yet the production does not appear to have kept pace with the demand, and in consequence good Tomatoes are only procurable at about twice the price they formerly realised. A West End fruiterer assures me that ten years ago he sold Tomatoes for 6d. per pound equally as good as those for which he now easily obtains 1s. per pound. This, however, does not mean a larger profit for the retailer, as the wholesale price has advanced so much that less profit is really secured than when the prices were generally lower."

— "L'ILLUSTRATION HORTICOLE" states that a few small plants of a new Palm, *PRITCHARDIA NOBILIS*, are included in some continental establishments, and that it is likely to prove a rival to *P. grandis*, *P. macrocarpa*, and *P. aurea*. The Germans have named it *Bismarckia nobilis*. We recently saw some fine young plants of a new *Pritchardia* in one of the London nurseries with large, rounded, bright green leaves and vigorous habit, that appears to resemble the above in its chief characters.

— THE same Journal gives a coloured illustration of SIX NEW *SONERILAS* of considerable beauty, with diversely coloured leaves. In *Comtesse de Flandre*, *Madame Legrelle*, and *Madame Secrétan* the green body colour predominates, with silvery spots and marbling, the first and third having reddish petioles, and the under surface of the leaves is of a similar tint. The other three—viz., *Madame Alfred Mame*, *Madame Charles Heine*, and *Princesse Mathilde*, are of a silvery colour with green veins.

— A BEDFORDSHIRE correspondent writes:—"The GALE of the 24th ult., accompanied by heavy rain, hail, and snow, was severely felt in the Biggleswade district. The gale was severe but short, and happily the damage has not been so great as the memorable gale of the 14th October, 1881; but some fine old trees have been uprooted in Old Warden Park, and others were severely shattered by the violence of the gale. Several fine old Oaks have suffered very much, owing to their still being heavily clad with autumn foliage. Much rain has fallen since the 24th ult., consequently the ground is saturated, and the land in low districts is very much flooded. Gardening and farming operations are almost at a standstill."

— MR. J. CLARKE, Brynkinalt, writes as follows respecting a NEW MELON, *SIR GARNET WOLSELEY*:—"When visiting the gardens at Brogyntyn a short time since I was agreeably surprised by a new Melon grown there by Mr. Lambert, the head gardener. It is a handsome, oval-shaped, green-fleshed Melon, beautifully netted, of exquisite flavour, and very prolific. Mr. Lambert informs me he has grown ten good fruits on a single plant, but the average weight of fruits is about 4 lbs. It is a very free setter."

— MESSRS. JAMES CARTER & Co., High Holborn, send us some flowers of their CROWN JEWEL *BEGONIAS*—a strain of considerable merit, to which we have previously referred in commendatory terms. The flowers are white, creamy, yellow, rose, and scarlet of many shades; the white very pure, and the others rich, bright, and clear. They are of moderate size, except the scarlet and white varieties, which have blooms of good size and substance, the petals broad and rounded.

— To ascertain the amount of SUGAR IN THE STALKS OF COMMON FIELD CORN (*Maize*), some stalks of the *Waushakum* variety were stripped of leaves at the New York State Experi-

ment Station, September 15th, and crushed in a mortar. The juice removed by an ordinary jelly press amounted to 57.06 per cent. of the whole substance, and contained 2.77 per cent. of sugar.

— FEW persons except dealers have any idea of the enormous extent of CUCUMBER-GROWING IN AMERICA. It is estimated, says the *American Prairie Farmer*, that the Long Island farmers alone grow 300,000,000 per year, the average price in large lots being about one dollar a thousand. A Chicago commission man estimates that 100,000,000 of the abominations are handled annually by the trade in the city.

— A CORRESPONDENT who has visited MR. WITHERSPOON'S VINERIES at Chester-le-Street informs us that the crop of Grapes is marvellous, and he was not surprised to hear that Mr. McIndoe observed on inspecting the houses that "no man living could have persuaded him that such crops of splendid Grapes were in existence; but seeing was believing." We saw the first crop of fruit in these vineries, which was of extraordinary weight and quality, and are glad to learn of the continued success of this excellent amateur cultivator.

— MR. T. S. WARE of Tottenham sends us a collection of very beautiful MICHAELMAS DAISIES and SINGLE DAHLIAS, well showing the value of such plants in autumn as late as the last week of October. The best of the Asters were the following:—*A. ericoides*, a graceful species with small white flowers produced in great numbers at the points of short lateral closely set branches, thus forming wreaths of blooms. *A. Amellus bessarabicus* is one of the most telling varieties, having large purple blue flowers. *A. novæ-angliæ* has neat rose-coloured flowers very abundantly produced; *A. novæ-belgii*, bright purplish blue, large and free; *A. lævis*, lilac flowers of moderate size and numerous. The Dahlias included most of those recently noticed in these columns, together with others of great beauty, two of those certificated at the last meeting of the Royal Horticultural Society at South Kensington—namely, Mrs. Goldring and Mrs. Burbidge, both very handsome. The "Black Dahlia" (*Cosmos diversifolius atrosanguineus*), figured in the last issue of this Journal, was also represented by a number of its velvety maroon flowers.

— MR. BUNYARD of Maidstone has published an appendix to his useful manual on FRUIT FARMING FOR PROFIT. A great portion is devoted to comments on the press criticisms of that work. The great scarcity of fruit of the present year is alluded to, but still Mr. Bunyard is convinced that where different kinds of fruit are grown one or other of them will be sufficiently productive to prevent failure. On this point he says:—"As showing how little the crop is affected where a variety of fruit is grown in established orchards, I learn that one East Kent grower has this season sold his 'top' fruit for £1000, and this with the smallest crop ever known in this part, while his under fruit has brought £700 more, and I believe this is the experience of most growers on a large scale. And were landowners in a better position than they are, after the many bad years experienced by their agricultural tenants, I have no doubt that a very much larger area would be laid down in orchards; as such give, so to speak, three crops in a year—wool, mutton, and fruit. In sheltered spots our Cluster Damson has done well, one grower taking 2500 bushels, which realised 13s. per bushel. Fruit-growing is an occupation where there is some risk, but the prizes far outweigh the blanks."

— A DAILY contemporary gives the following particulars of the EXTRAORDINARY RAINFALL of the past fortnight:—

"It appears that in the west and south-west of England the amount of rain measured in the course of the past fortnight has been about double the average for the entire month of October, while over the midland and south-eastern counties it has been about half as much again as the monthly average. In London rain has fallen every day, and on five days out of the fourteen the amount has been at least

half an inch, the aggregate for the period being about $4\frac{1}{2}$ inches. Few persons are aware that an inch of rain over an acre of ground means 101 tons, or 22,623 gallons, of water. Accepting as correct the Registrar-General's estimate of the gross area of London and its immediate suburbs, it would therefore appear that an inch of rain over the London district weighs in round numbers 45 millions of tons, and amounts to the overwhelming volume of 10,000 millions of gallons of water. Estimating the total amount of rain in London during the past fortnight as $4\frac{1}{2}$ inches, and applying this amount to the above figures, we find that the weight of water which has fallen has exceeded 190 millions of tons, while in volume it has amounted to 42,500 millions of gallons. In attempting to grasp such enormous numbers the mind becomes lost, but some idea of the immensity of the volume may be gained by imagining it all to be concentrated into one reservoir or basin. Supposing such a reservoir to be quite square and 40 feet in depth, the sides of the square would be more than 13,000 feet in length, and a walk round it would entail a journey of very nearly ten miles. If we imagine the water to be enclosed in a cubic vessel, the sides of such a receptacle would be each about 1896 feet long."

— MESSRS. W. & A. GILBEY recently communicated an interesting letter to the *Times* on the vintage in France, from which we cite the following notes:—

"THE EXTENT OF LAND UNDER VINE CULTIVATION IN FRANCE affords striking evidence of the importance of the Vine to the prosperity of that country. The average production of wine in France is estimated at 184 gallons per acre. One-twenty-fifth part of the total area of France is appropriated to wine-production, and the number of acres under Vines, which a hundred years ago were just under 4,000,000 (four million), now exceeds 5,000,000 (five million) acres, and this notwithstanding the fact that 1,400,000 (one million four hundred thousand) acres of Vines have recently been destroyed by the phylloxera. At the same time, with this large additional extent of vineland, a state of things appears to have arisen in France something similar to that against which we hear a good deal of complaint in England at the present time—that is to say, the land is getting into the hands of a smaller number of holders; for although, as we have stated above, there are now a million more acres under Vine cultivation than there was a century ago, the number of the proprietors of vineyards, which in 1829 was 2,169,504, had fallen in 1878 to 1,932,573 only."

— RELATIVE to the PHYLLOXERA AND ITS ERADICATION it is stated that

"In the department of Herault, which produces between a fifth and a sixth of the entire French vintage, thanks to the energetic efforts of its Vine-growers, who have had recourse to American Vines for the purpose of replacing the Vines which have died from the effect of this insect scourge, this department is fast recovering from its first scare, and is rapidly regaining its old position and former confidence. In the Charentes, the great cognac-producing districts of France, unhappily the same is not the case. There the proprietors appear to have resigned themselves to what they have come to regard as inevitable, and cereals are fast taking the place of the Vine. On inquiring the reason for this we were informed that of the two most generally accepted remedies for the destruction of the phylloxera, one, that of the employment of insecticides, such as sulphur of carbon and sulpho-carbonate of potassium, has been found too costly; while, owing to the rocky nature of the soil and the small surface of earth, the land is said, on the other hand, not to be suitable for the planting of American Vines. In another of the large wine-producing departments above referred to—the Gironde—the phylloxera has undoubtedly also made some progress and created much alarm. Looking, however, at the wealth of the proprietors in this district and the importance of the interests at stake, it is quite certain that no effort will be spared, and hardly any expense found too great, to save the Vines of this department, which are regarded as the most precious of all the Vines of France."

— THE following shows the YIELD OF THE WINE-PRODUCING COUNTRIES OF THE WORLD:—

"It is estimated that the total average annual production of all the wine-producing countries of the world is nearly 3,000,000,000 (three thousand million) gallons, and that of this quantity about 35 per cent., or rather more than one-third, is derived from the vineyards of France. The total quantity of wine exported by France during the last four years has been 240,750,000 gallons; the value of the quantity thus exported for the year 1881 alone being nearly £10,500,000. According to French statistics, England in reality is the best customer of France, taking between a sixth and a seventh of the total quantity of wine she exports; the next largest consumers, in order of importance, being Switzerland, Germany, Belgium, Algeria, the Argentine Republic, and the United States."

ROSE RÊVE D'OR.

I QUITE agree with your correspondent M. F. Woodley in considering Rêve d'Or to be one of the very best climbing Roses, its

principal merit being that, though it is excelled in power of growth on a warm wall by, perhaps, Climbing Devonensis alone of Teas and Noisettes, it yet keeps the base well covered with sprays and foliage, in this respect far surpassing any other Rose in my experience. But I cannot agree with him that it should be grown in a cool house. I find it perfectly hardy and evergreen on a warm wall in the severest winter we have had for the last five years. Yet, though covered with a mass of bloom in the spring, secondary flowers are with me comparatively few; and I think few who are acquainted with the whole class of Teas and Noisettes would place it among the first twelve, for Roses must be judged by their flowers, and a good bloom of Rêve d'Or, though very pretty, is hardly first-class.—A. F. M.

PRODUCTIVENESS OF POTATOES.

To show what may be done with the Potato by cultivation I send you a statement of the produce of one tuber of Magnum Bonum planted whole in the garden at Glan-y-wern in March last, and this day raised with the following result:—

	lbs.	ozs.
7 Potatoes, each above 1 lb., weighed.....	7	9
9 " " " " 3 lb., "	8	2
10 " " " " 1 lb., "	6	7
7 " " " " 1 lb., "	2	15
6 small Potatoes	0	4
39 Potatoes weighing	Total	25 5

The stems of the haulm, instead of being allowed to trail upon the ground, were attached to stakes placed round the Potatoes, thus exposing both the surface of the ground and the foliage of the plant to the sun, air, and moisture. The seven principal stems ultimately attained the height of about 7 feet. The Potatoes were well formed and even in character, as an analysis of the weight shows, the heaviest weighing 1 lb. 3 ozs., while the remaining six of the first lot averaged 1 lb. 1 oz. each. The nine Potatoes of the second lot averaged $1\frac{1}{2}$ ozs., the ten in the third lot averaged $10\frac{1}{2}$ ozs., and the seven in the fourth lot averaged $6\frac{3}{4}$ ozs., the remainder were very small.

The parent Potato was moderate in size, planted on a bed of turfy loam without manure. Fresh soil was added as the tubers increased in size. A can of liquid manure was applied six or seven times, and water in very dry weather. The haulm remained perfectly sound to the last, the foliage throughout being very fine until the last fortnight, when the leaves began to die. The ground occupied by this Potato was about 4 feet square.—PHILIP S. HUMBERSTON, *North Wales*.

AUSTRALIAN ORCHIDS.

THE great Australian continent, though abounding in distinct types of vegetation and possessing a tropical climate over a large portion of its surface, does not include many representatives of that beautiful family the Orchidaceæ which a few degrees farther north are so numerous in the islands of the Malayan Archipelago. This is doubtless due to the comparative dryness of the climate and the peculiar conformation of the surface, which is somewhat basin-shaped, the higher parts being near the coasts, the large central portion presenting a flat extent of land, mostly arid and desert-like, but relieved in a few localities by slight elevations. In such a country we could not expect to find any remarkable luxuriance of epiphytal vegetation like the humid forests of Brazil produce, and we have instead an abundance of those peculiar dry-climate types, such as the members of the Rue family, the Eucalypti, the Proteas, and others, mostly distinguished by firm or leathery foliage, which frequently possesses powerful aromatic odours. In a few districts, however, Orchids are found, and these include several beautiful species. They are nearly all natives of some part of the east coast from Moreton Bay to Torres Straits, but the terrestrial species far exceed the epiphytes in number; and though outside the genera Dendrobium, Cymbidium, and Sarcochilus there are few of the latter class, yet the others are represented by such genera as Thelymitra, Cadadenia, and Pterostylis, which are scarcely known in English gardens, though two familiar terrestrial Orchids have been observed there—namely, Phajus grandifolius and Calanthe veratrifolia; but these can only be regarded as strays from more northern latitudes. With these exceptions the terrestrial Orchids of Australia do not possess much value in a horticultural point of view, and do not need consideration here; but the epiphytes well deserve attention, commencing with the

DENDROBIUMS.—This handsome genus, the species of which are so well known and admired in gardens, has about twenty forms that are either indigenous to or naturalised in Australia, and are

entitled to be considered the typical Orchids of that country. These are strangely varied in habit and other characters, some ranking amongst the curiosities of the Orchid family, and others

amongst the most beautiful. *D. cassythoides*, *D. linguæforme*, *D. teretifolium*, and *D. cucumerinum* may be taken as samples of the peculiar species, the names of which indicate their distinguish-



Fig. 66.—DENDROBIUM SUPERBIENS.

ing characters. The last in particular is a strange little Orchid, affording what Mr. Leo Grindon would term "an echo of the Cucumber," for the pseudo-bulbs or leaves, whichever they be, and it is not easy to determine the point, precisely resemble those small Cucumbers known as Gherkins in size, colour, ribbing, and

the small prominences on the surface. The Cassytha-like, the tongue-shaped, and the round-leaved Dendrobes named above, are in a measure similarly noteworthy for the characters expressed in these names. *D. linguæforme* is especially interesting in another way. It was first discovered in the Pacific Islands by

Sir Joseph Banks, who accompanied Captain Cook on his noted voyage. It has, however, since been found on the east coast of Australia at Port Jackson and Moreton Bay. It may be further remarked that this species is peculiar in its habitat, as it is said to be observed growing on moss-covered rocks on the coast—a rather remarkable position for an epiphytal Orchid.

Turning, however, to the species distinguished by the beauty of their flowers, which are of so much more importance to the gardener than the former, we have several that might be advantageously included in every collection; and prominent amongst these is that represented in the woodcut (fig. 66)—viz., *Dendrobium superbiens*. For this handsome Orchid English horticulturists are indebted to Mr. B. S. Williams of Upper Holloway, who obtained it through his collector, Mr. Goldie, about six years ago, and it has since become a great favourite, though some little difficulty has been experienced by a few growers in ensuring its satisfactory flowering. No such difficulty is, however, found at the Holloway nursery, where it flowers as freely as any other *Dendrobe*, and the blooms last for several weeks. The chief point in this successful treatment appears to be the temperature afforded, and this is worthy of note by all who have failed with the plant. *D. superbiens* is grown at Holloway in a small span-roof house extending from N.E. to S.W., in which a temperature ranging from 65° as the minimum to 80° as the maximum is maintained. The plants are grown in small shallow pans from 3 to 4 inches in diameter, the compost consisting of peat and sphagnum. They are suspended close to the roof and *never shaded*. In this way well-matured growth is obtained, and as a result the plants continue flowering over a long period, one with pseudo-bulbs about 3 feet long having borne ten racemes in succession. Some of the racemes even on small specimens have ten to a dozen of their rich rosy-purple-coloured flowers. It may be remarked that both *D. Ainsworthii* and *D. formosum giganteum* succeed admirably under similar treatment. Of the other *Dendrobes* the two best are *D. bigibbum*, *D. Hilli*, and *D. speciosum*; the first dwarf, with bright rosy flowers in small racemes; the two others of much taller habit, especially *D. Hilli*, and bearing long racemes of creamy flowers. *D. bigibbum*, with its varieties *candidum* and *superbum*, is much admired by orchidists, as, like *D. superbiens*, it supplies a rather uncommon tint in the genus, or, indeed, in the family.

Cymbidium reflexum, *C. suave*, and *Sarcophilus falcatus* are three of the best amongst the other Australian epiphytic Orchids; but even they are not very striking, and they cannot pretend to share the merits of the *Dendrobes*.

As might be expected, there is a great range in the temperature of so large an extent of land, the mean annual temperature varying from 60° in the south to 80° in the north; and the annual rainfall also varies considerably—namely, from 80 inches on some parts of the east coast to 12 inches, or even less probably, in the drier regions, so that it is of much importance to know the precise locality from which plants are obtained.—L. CASTLE.

SAND FOR PROPAGATING.

It is difficult at times both in gardens and nurseries to procure good sand for propagating purposes, as there is much difference in its quality. Sand should be tested before many cuttings are inserted in it, as an inferior material may be employed, and the consequence is batch after batch of carefully grown and prepared cuttings damp off. For over two years I filled the place of propagator in a large nursery in Scotland, where we had every opportunity of testing the various methods in propagating plants, and found it rather difficult in the dull days of winter to strike soft-wooded plants successfully, even under the best of treatment, in the early months of the year. We repeatedly lost numbers of cuttings. Some, no doubt, would say that was due to bad management, but in the first place the sand was of the worst description. A day or two after the sand was placed in the propagating chambers and cuttings inserted it was examined with a microscope, when innumerable small threads were observed not unlike spiders' webs on the surface of the sand, and when that fungus came in contact with the cuttings very few survived. Although the sand remained in the propagating chamber until it was dust-dry, after it was watered it gave the same result. Various methods were adopted to destroy the pest. A little salt mixed with the sand was a great preventive, still at all times it had not the desired effect. As the day lengthens light and heat increases, propagating becomes a much easier task.

Sometimes in private gardens very bad results may be seen in propagating plants. No doubt the cuttings are made and inserted correctly, watered, and due attention given, but more frequently sand from a river side is employed in those establishments, and

most of our rivers are polluted to an alarming extent. Sand from such sources must be neither adapted for the propagating nor the culture of plants. What is wanted is pure sand free from iron and minerals of any description. But in what parts of our country can such a sand be obtainable? There are various quarries of more or less importance. One which has come under my observation, and perhaps the purest white sand quarry in our island, is at Gateside, near Gourcock, as scarcely ever a cutting damps or fails in it. My trials extend over winter and summer. During January of last season we inserted a large number of tricolor *Pelargonium* cuttings in small boxes, and placed them in a moist plant stove more to test the property of the sand in the winter than the need of the plants, with the result that every cutting rooted much more quickly than ever I saw *Pelargoniums* root before, and a similar success attended my efforts with other cuttings during spring; our success this autumn is also very satisfactory.—WM. MUIR, *Bagatelle*.

AUTUMN-SOWN PEAS.

DURING the latter days of October and early in November is the best time to sow autumn Peas, and the advantage of doing this is often felt in spring, when a well-wintered batch produces pods some weeks earlier than the spring-sown rows. All know that many spring-sown Peas fail to make any satisfactory progress if the weather is unfavourable or vermin troublesome, and the same drawbacks are liable to occur in the case of autumn-sown Peas, but with both there are many chances of their doing well providing sowing is done at the proper time and necessary attention given afterwards. Only early kinds should be sown now, and those should be of the hardiest character. Round-seeded varieties must be selected. Wrinkled kinds are too tender; they are very liable to damp off in germinating, and they appear delicate when first they appear above ground in the winter side of the year. A spot well exposed to light and sun, but sheltered from winds, is a good situation for sowing autumn Peas. The ground should be deeply stirred and well manured, the rows not being nearer than the height the kind grows, and if a couple of feet wider so much the better; but while we approve of growing summer Peas in rows here and there and widely apart, we like the autumn and first spring-sown rows to follow each other and shelter one another.

Our Pea ground now is that from which we have lately cleared a lot of Cabbages. Manure was wheeled on the ground, dug over, and the drills opened, the Peas sown, and everything finished off in one day. When the soil is dry enough for digging, and in good working order in this way, it is surprising how well seeds germinate. The drills should be about 3 inches deep. The seed should be sown moderately thick, and the whole should be covered over firmly, and from the day the seed is buried until the stems are above being injured by mice and other vermin, constant attention must be devoted to trapping and killing, as one of the main points to success is to have the rows strong, entire, and even in growth. The many ways of destroying garden pests need not be pointed out here, but an impressive caution to beware may be given. As soon as the young plants are above ground a little earth should be drawn up on each side, but not close to them, the object being to afford a little protection. As growth advances, small twigs, such as birch from old brooms, should be put in on each side of them, and when 3 or 4 inches high stakes may be applied. If the weather is mild it may be necessary to do this before the new year, but if severe they may not be ready for stakes for some months. Frost or snow will not injure Peas sown now, and no attempt should be made to coddle them at any time, as this is sure to result in a relapse and loss.—A KITCHEN GARDENER.

SILKWORMS AND SILKWORM REARING.—18.

(Continued from page 349.)

It is one of the projects of the hour to introduce Chinamen to Britain for a variety of purposes, amongst them to show us how best to mix and combine teas of diverse flavours or strengths. Some persons may by-and-by suggest that we might obtain the services of Japanese natives of the Yama Mai district to instruct us in the art of tending and rearing this Japanese silkworm, concerning which such hopes have been entertained. No one can question the beauty and excellence of the silk that is yielded by its cocoons, but we have been as yet far from overcoming the difficulties which have impeded its successful rearing on a scale that would hold out the promise of certain commercial results. The Oaks of Britain have now ceased to be of the old importance to our navy; and, as Dr. Wallace remarks, it would be a famous

thing could we turn their leaves into a valuable silken fibre. Time, it may be, will yet bring this about.

My own experiment with *Attacus Yama Mai* was made some fifteen years ago on too small a scale to be of any moment, yet I succeeded in ascertaining a few facts tending to confirm what had been noticed or surmised by others. Want of leisure has prevented me since from trying the breeding of these worms under better arrangements, with a larger number to work upon, and in a summer less dry and hot than was that of 1868. A number of reports were published by persons who had fed the worms during the above season, showing many failures to be largely attributed to the weather of that very exceptional summer, for we have not yet had one that would rival it for uninterrupted sunshine and lack of moisture. Still, the truth must be told, that in summers more promising the caterpillars of *A. Yama Mai* have also shown a troublesome tendency to die off. I was unable to procure either Austrian or English eggs, so had to try some Japanese, which are seldom found to yield so strong a brood of worms. However, I got worms from two-thirds of the eggs; these emerged between the 6th and 21st of May. The intervals separating the changes of skin were generally nine or ten days, and it was about fifteen days after the fourth of these had been passed when the spinning commenced. On the whole it was evident my examples of the species grew slowly as compared with some reared by other naturalists, and Dr. Wallace may be right in thinking that the more rapidly the worms can be reared the greater will be the success, although he would not advise forcing.

My silkworms were fed upon Oak as succulent as I could obtain, the twigs being inserted in bottles of water. The nursery was a cool outhouse facing the north, without a current of air passing through certainly, but air was freely admitted in the daytime. The leaves were not allowed to remain until dry ere they were renewed, though, as I was resident in London, there was some trouble in getting fresh Oak during July, just when the worms needed abundant supplies. With some astonishment I one day saw a worm that had wandered crawl, not merely upon, but into a tumbler of water, and the liking the species has for occasional sips is a circumstance verified by many observers. Another liking, rather inconvenient, is that which some of them have for taking a bite out of a relative's back at a quiet opportunity, the wound so given being fatal sooner or later. On the near approach of anyone to the twigs upon which they are feeding, the caterpillars of *A. Yama Mai* cease to eat, so that visiting them too frequently might check their growth. This is a circumstance in favour of placing them in a position of comparative freedom upon young Oaks according to the Japanese plan, but then several circumstances have seemed to be against it, at least in this island. Some coaxing is required when they have to be shifted, as they are apt to cling very tenaciously to dry twigs and branches. By a gradual process of reduction I lost nearly the whole of my brood from disease, only a few surviving as mementoes of the trouble I had taken. Probably I should have saved more had I sprinkled the Oak with water, as some did, and others even went so far as to give their worms an actual ducking when the weather was very hot. Dr. Wallace does not seem to regard it of special importance that the leaves given should be chiefly young and succulent, for his worms fed well on Oak somewhat dry; his correspondents also differ in opinion upon this point. Their letters also show that these silkworms have been reared in and out of doors under such different conditions, as within glass buildings and exposed day and night to our climate in a plantation. Mr. Gascoigne, who succeeded in rearing a fine brood, argues in favour of an equable temperature for their room, an abstinence from water, and a free circulation of dry air. When newly hatched they have thriven upon oaklings in boxes of three or four years' growth, but their propensity to wander is always tiresome at this early age; it is less marked after the first change of skin.

To summarise those practical suggestions concerning the management of these silkworms that have arisen out of the patient experiments of naturalists scattered over these islands, it may first be remarked that, to start with, European eggs are preferable to those imported from Japan. If procured during the autumn the eggs should be kept until spring in a cool and dry place; even in the open air is not amiss, provided they are not subjected to a temperature that would freeze them. About the time the Oak is full in bud they may be laid upon blotting paper in plates and slightly damped, then covered with glass funnels or tumblers, upon which the newly hatched worms can be easily seen. By the aid of a stiff brush of camel or sable's hair they can be moved to young leaves of Oak. Dr. Wallace advises giving them a run on a moistened surface of earthenware before

placing them upon their food, as he thinks a "refresher" of this kind lessens their propensity for wandering. A proportion of them are sure to die in infancy. Should they be kept in the open air they must be guarded both from birds and spiders.

It does not seem to be a good method to keep these silkworms under bellglasses or in close boxes, but they will do moderately well in a plant house or room not too sunny. After they are half-grown they have been found to thrive if set free upon Oak saplings, where for security the twigs may be covered with gauze bags. Twigs and branches of Oak placed in water or sand will keep fresh for two or three days if the weather is not very warm. To remove the worms by the finger from stale to fresh food is hardly ever advisable. The plan is, having arranged your new Oak, to cut off the old sprays all the leaves or twigs unoccupied by the caterpillars. The remainder may be laid upon or put beside the new sprays, and they will soon shift their quarters. As a precaution against their wandering, trays and tables upon which bottles or jars containing Oak are placed ought to be round rather than square. Some stand these upon plates, the edges of which are greased, so that the silkworms are kept in check should they leave their food, as they will not crawl over this obstruction. Hasty moving while they are changing their skins is inadvisable, since a hurt is likely to be given by any rough treatment then. Although a little moisture on the leaves is rather beneficial than otherwise, it does not appear that the worms flourish if the foliage of the Oak given them is in a watery or over-succulent state. As they approach maturity an abundant supply of food is requisite, and the temperature of their room should be kept moderate if possible. Out of doors they should be shaded from too bright a sun. It is not needful to make special arrangements for spinning, as the habit of *A. Yama Mai* is to form its cocoons near the terminal twigs of the Oak. Of our native species Dr. Wallace recommends *Q. sessiliflora* as the best food.—J. R. S. C.

BUCKLAND SWEETWATER GRAPE.—I am rather surprised to see Buckland Sweetwater so much condemned in last week's Journal. It is very highly thought of here, and is in greater demand than Foster's Seedling. Buckland Sweetwater when well grown and finished realises a higher price in the market than Foster's Seedling. I consider Golden Queen well worth growing.—G. R. A.



KITCHEN GARDEN.

PEAS to afford an early crop may now be sown in a well-sheltered border of friable soil. A south border is the most suitable, having the rows north and south and about 4 feet asunder, with Lettuces between. Before sowing, the Peas ought to be either damped and coated with red lead, or damped with petroleum, to prevent the attacks of mice. William the First and Dickson's First and Best are the best early varieties in cultivation. Where space is available a sowing of the early dwarf varieties may be made at the base of a south wall, American Wonder being a good cropper. Slugs are frequently troublesome to Peas. Dress the ground with lime, and point in before sowing; and as a still further protection, give a dressing of a couple of inches thickness of sifted ashes after covering the Peas with soil, allowing the ashes to extend a few inches beyond each side of the row. Broad Beans may also be sown on a warm border, Early Mazagan being very early and hardy, but small. Seville Longpod and Early Longpod, though not so hardy, are much larger and early. Similar remarks apply to these in regard to precautionary measures against mice and slugs as advised for Peas.

Cauliflowers should be pricked out from the seed beds in pits and frames, and any remaining after due provision has been made by those means for a supply of plants for transplanting in spring may be pricked out on a sheltered border, where, if the winter does not prove unusually severe, they will survive. On a dry day lift Cauliflowers that are fit for use, and store them in a pit or sheltered position where protection can be afforded.

Complete lifting root crops such as Carrots, Beet, and Salsafy, and a portion of the Parsnips for immediate use; otherwise, and the

ground not being immediately wanted, these may remain in the ground for some time. Late-sown Turnips should be examined, those fit for use being stored in damp sand. This will improve the remainder of the crop, which may stand for later use. Complete the earthing-up of Celery, and where the soil is wet it will be preferable to employ ashes, sawdust, or cocoa-nut fibre refuse in preference to soil for this purpose.

FRUIT HOUSES.

Vines.—To have ripe Grapes in April the Vines, whether in pots or planted out, must now be started. Although bottom heat is not essential, yet when compelled to force early and quickly a bed of Oak leaves with a third or fourth of stable litter will hasten the Vines considerably, and with the Vines planted out in inside borders a good bed of Oak or Beech leaves with a little horse dung added will greatly facilitate the starting and be more beneficial to the Vines than fire heat alone. The inside border should have a thorough soaking with water at 90°, after which introduce the fermenting materials either on the border or floor to a depth of 2 feet, and occasionally turn them, the ammonia-charged vapour being highly favourable to the Vines. Syringe the Vines and house three times a day in bright weather. A temperature of 50° to 55° at night and 60° to 65° by day will not be too high to commence with, as the Vines will require a higher temperature than in December or January. The outside border must have regular attention as to covering.

Prune Vines in succession houses as soon as the leaves have fallen, the advantage of early pruning not being sufficiently appreciated—viz., earlier and complete rest. From all Vines bearing ripe Grapes remove the dead and decayed foliage. The wood of young Vines not yet hard and brown should have fire heat still applied, and this with free ventilation will soon ripen them.

Cucumbers.—The autumn fruiterers are now in good bearing. Maintain a night temperature of 65°, or 5° more in mild weather; 70° to 75° by day, and 80° to 85° from sun heat. Admit a little air at the top of the house on every favourable opportunity, which should never be done, particularly at this season, with a view to lower the temperature, but to prevent the temperature rising too high—to allow of rank heat and steam escaping. Ventilate cautiously on bright cold days, shutting off the top heat for a few hours at midday. Cease syringing the plants except on bright mild afternoons, but keep the evaporation troughs filled, damping the paths and walls morning and afternoon in warm clear weather. Take care that soil and water applied to the roots is of the same temperature as the house, and avoid sudden fluctuations in the temperature. Examine the plants once a week, stopping the shoots one or two joints beyond the fruit, removing bad foliage and superfluous growths. Upon the first appearance of mildew dust with flowers of sulphur.

PLANT HOUSES.

China Roses have passed out of general favour, but where these are grown, cut back and potted in spring after flowering, and plunged outdoors in ashes, they will now have abundance of flower buds, and if placed in a light house with a temperature of 45° to 50° they will open their buds and flower for a considerable time. Afford weak liquid manure, and keep them free from aphides.

Show, Fancy, Regal, and Spotted Pelargoniums must be kept as near the glass as possible, and as dry at the roots as can be done with safety, so as to prevent them becoming too luxuriant. Tie out the shoots neatly as they advance in growth. Zonals that have been grown and especially prepared for winter flowering should now be placed where they have plenty of light and a minimum temperature of 50°, just giving enough water to keep them slowly growing, supplying weak liquid manure.

Primulas should have a light position and be carefully watered, giving, however, thorough supplies when needed, and of a weak manurial kind. Ventilate freely on all favourable occasions, damp being their greatest enemy. A temperature of 45° to 50° is necessary.

Cinerarias sown early and grown on through the summer are advanced for flowering, indeed some of them are in bloom. The self-flowered sorts in various shades of blue, purple, scarlet, crimson, and white are very effective. They should have a temperature of 50°.

Other stock of these plants may be kept in a cool, moist, light structure, frost only being excluded, fumigating upon the first appearance of aphides. Shift successional plants into larger pots before they become root-bound, or when this is delayed too long the plants receive a check, generally resulting in their decaying at the base of the stem. Cyclamens producing their flowers should have a light position in a temperature of 50° to 55°, supplying them with weak liquid manure. Successional plants should be treated similarly, a little extra warmth being essential to their free growth and flowering.

Carnations for producing successional flowers through the winter must be well attended to, not allowing them to become dry at the roots. A temperature of 50° to 55° is necessary. Mignonette must have a light well-ventilated position, or the plants become weak; and keep the growths neatly staked and tied as they advance in growth. Those flowering should have a temperature of 45° to 50°.

Fuchsia cuttings struck in August should be shifted into 6 or 7-inch pots, and placed in a house close to the glass in a temperature of 50°, tying and stopping the leading shoots according to the habit of the plant. Old Fuchsias that have flowered should be partially dried off, but the soil must not be allowed to become dust-dry.

Herbaceous Calceolarias require potting singly, 3-inch pots being large enough at the first. Good loam, with a sixth of leaf soil or well-decayed manure and a little sand, is a suitable compost. Place them in a cool moist pit near to the glass where they will be safe from frost. Previous to potting the plants should be dipped in tobacco water, as they do not like fumigation.

Conservatory.—This structure is gay with Chrysanthemums, which should be kept at the coolest part of the house. With Primulas, Cyclamen, early-flowered Cinerarias, Zonal Pelargoniums, Salvia splendens and *S. gesneræfolia*, Epiphyllums, Epacrises, and Correas, a very effective display will be made, but avoid overcrowding. Free-growing roof climbers should have the shoots well thinned or cut back, for, however much shade may be desirable in summer, all plants require free exposure to light in winter.

THE BEE-KEEPER.

HIVES.

"THE markets and show tables are full of novelties. . . . The prices asked for some hives are exorbitant and far beyond their value." Thus writes Mr. Pettigrew in the Journal of the 5th inst., and he has just cause for so writing. The reason why such novelties are produced and why they are purchased he gives in the opening sentences of his letter. "Many people like to follow the fashions and go with the majority. They readily spend their money for things last out, hence new inventions are the order of the day." So far we go with him; and if people who take to bee-keeping as a pleasant pastime choose to expend their money on hives costing from £2 to £4, and to purchase appliances which quickly make away with a £5 note, we say, Let them do so by all means, it is good for the trade. But such hives and appliances are not within the reach of the cottager or artisan, who looks to his bees to help to pay his rent at Michaelmas. When Mr. Pettigrew would recommend the Stewarton hive in preference to the bar-frame hive we can go no farther with him. We do not for a moment doubt that straw is a superior material to wood for hives, but seeing that the difficulty has not been surmounted to make hives of straw which can have all the advantages of the moveable-frame system, for the present we must accept the wooden walls.

The question is how to make a hive of wood so as to keep bees and combs dry in it. Surely the bee-keeping readers of this Journal do not accept the inference that all bar-frame hives must have moisture condensed on the walls during the greater part of the year, and rotting combs! If such were the unhealthy state of colonies how could such grand results be obtained as the piles of beautiful sectional supers of honey, the breeding of healthy queens sent out by scores from our leading apiaries, the powerful stocks which store these piles of sections and produce these healthy queens? Great results can be obtained with the Stewarton in the hands of an able manager; but after all the product of

comb honey is in large shallow supers, and must be broken up to be retailed. Compare the comb honey in a Stewarton super with equal weight in 1 lb. or 2 lb. sections. Which is put up in the most inviting form? Which is the most portable? Which would be preferred by the salesman? One must be broken up and weighed out piecemeal, the other is already in a neat receptacle, and could be carried without any waste or trouble from one end of England to the other. When such honey is offered to the public, instead of the messy bulk in bellglasses or straw supers, as of old, is it a wonder that "the bar-frame fever is reaching to its height?" It doubtless is, and is likely to remain at its present height, until all who keep bees have learnt to adopt the system. But sectional supers can be filled over any kind of hive—over the straw skep, or box hives such as the Stewarton. The superiority of the bar-frame hive, therefore, does not depend on its system of supering. It is the hive which places the bees and combs entirely under the control of the bee-keeper. In a few minutes the whole of the combs can be separately examined, and their condition and that of the bees correctly ascertained. What we want to know about the queen, the brood, or the honey stores can at once be got at. Whatever may be the pros in the Stewarton or skep system, there must remain the contra that they are both systems of fixity, and therefore cannot be entirely under the control of the bee-keeper. The question then remaining is, How is a cottager or artisan who cannot buy an expensive hive to obtain one on the moveable-frame system at a reasonable cost? The answer is, Any man who can use a saw and hammer can make a substantial hive which shall be a healthy home for his bees at all seasons of the year.

We make our own hives during leisure hours, and their construction is so simple that we are certain that others can do the same during the coming winter, and thus start with good serviceable hives next spring. We will, therefore, endeavour to describe how our hives are made. Although measurement as to the length

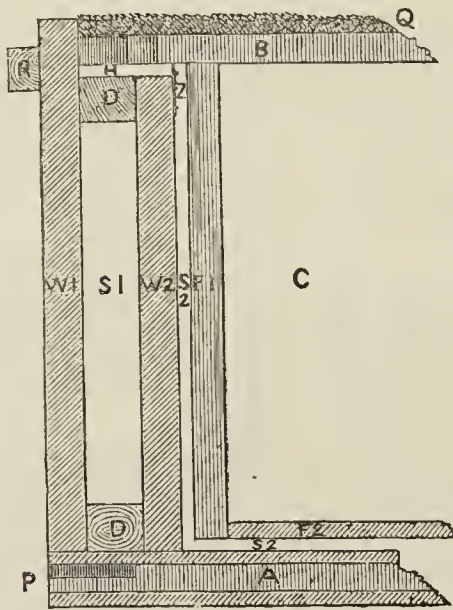


Fig. 67.

A, Floorboard. B, Frame-bar. C, Comb. D, D, Strips to act as stops. F1, Side of frame. F2, Bottom of frame. H, Bar, wedge-shaped. P, Furrowed corners. Q, Quilt. R, Strip for roof to rest on. S1, Dead air space. W1, Outer side wall. W2, Inner side wall. S2, $\frac{1}{4}$ -inch space round frame. Z, Zinc runner.

of the hive is immaterial, yet all the hives in one apiary should be in every respect alike, in order that all parts may be interchangeable. Brood boxes, frames, dummies, roofs, floorboards, and supers should be so made that any one may fit with another. We find that it is better to make the side walls of the hive hollow. The dead air space keeps the body of the hive warmer in winter and cooler in summer than single walls would do of whatever thickness. It will be presently seen that there is no need to make the front and back walls hollow, since the dummies take the place of the inner walls in those parts of the hive. Well-seasoned three-quarter-inch stuff is the best to use. If only planed on one side it will answer the purpose. To make the body of the hive saw off four pieces 9 inches wide, two of them to be 18 inches, and two $23\frac{1}{2}$ inches long. Those 18 inches long are to form the front and back of the hive, and those $23\frac{1}{2}$ inches long the two outer sides of the hive. Two other pieces 8 inches broad and 22 inches long form the inner side walls (W2, fig. 67) of hive. To these two pieces are to be tacked two strips of zinc, say $1\frac{1}{2}$ inch broad and the same length as the inner side walls, projecting a quarter of an inch above these walls, thus making $8\frac{1}{4}$ inches from floorboard to level of the zinc runners (Z, fig. 67). The frame bars (B, figs. 67

and 68) rest on these runners, and the bees are unable to propolise the frames to the hive. Mark off $7\frac{1}{4}$ inches on either side the centre of the inner sides of the front and back of the hive, in order that the interior breadth of the hive may be just $14\frac{1}{2}$ inches. The two inner walls may now be nailed on square, placing them outside the lines just marked off. Then nail on the outer side walls (W1, fig. 67), which are to overlap the front and back of the hive, so as to be nailed on square against them. Fit in strips of wood flush with the bottom and top of the 8-inch inner side walls between these walls and the outer walls, so as to shut in the space between them, and to prevent all draught through these spaces, as well as to exclude spiders, moths, earwigs, &c. Half an inch from the top all round the outside of the hive nail on strips half an inch wide and three-quarters deep, to be supports for the roof. In the centre of the hive front cut out a piece a quarter of an

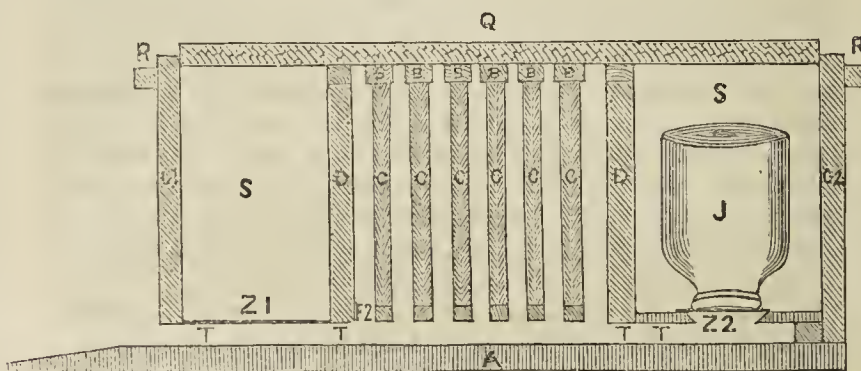


Fig. 68.

A, Floorboard. B, Bar. C, Comb. D, D, Dummies or dividers. F2, Bottom bars. G1, Front wall. G2, Back wall. S, Space. Q, Quilt. T, Tunnels. J, Feeder. R, R, Rests for roof. Z1, Strip of zinc forming roof of tunnel. Z2, Zinc with punctures.

inch high and 6 inches long as an entrance for the bees. Some arrangement should be made by which this entrance may be expanded or contracted at pleasure. Two strips with slots running on four tacks, as fig. 69, or two strips sliding in a groove or rebate above, will answer the purpose; but they should terminate with an inch of perforated zinc, in order that when quite closed together the bees may still have ventilation. At times it is useful to have some adjustment whereby the hive may be quite shut up—e.g. in case of troublesome robbing or when wishing to remove the hive to another position. A pent to shed the rain or shade during very hot weather may be made by screwing on a piece of wood or tacking a strip of painted zinc just above the entrance. Its width may be from 3 to 6 inches, and length the same as the front of the hive.

The floorboard (A, figs. 67 and 68) should be made as in fig. 67. A frame, A, is made of three-quarter-inch batten, and tennoned or made to overlap as to its separate pieces at the corners, as P, fig. 67. It should measure when put together $19\frac{1}{2}$ inches by $26\frac{1}{2}$ inches. The strip forming the front of the frame should be wider than the others, say 5 inches; the other three sides need not be more than $2\frac{1}{2}$ inches. This wide side should be bevelled off for 3 inches of its width, which part will form the alighting board for the

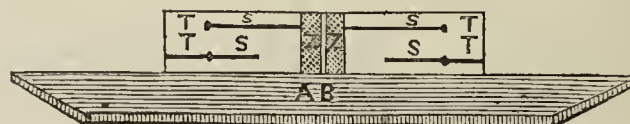


Fig. 69.

S, Slots. A, B, Alighting board. T, Tacks. Z, Perforated zinc.

bees. To this frame should be braded on both sides thin pieces of wood. If a stay be put across the centre of the frame quarter-inch deal will do very well to brad on. This will make a good reversible floorboard.

The frames are made as follows. For the top bars (B in figs. 67 and 68) strips of wood barely an inch wide, half an inch thick, and 18 long. Not having a circular saw to make a slot to carry the sheet of foundation or guide, we saw the bar through the centre lengthways for 15 inches of its entire length. Two pieces 8 inches long, half an inch thick, and three-quarters of an inch broad, form the sides of the frame. The top bar is nailed on to these side pieces so as to leave a quarter of an inch space between them and the sides of the hive, as S2, fig. 67. The bottom bar is 13 inches long, and need only be a quarter of an inch thick and three-quarters of an inch broad, and nailed on inside the side pieces of the frame, as shown fig. 67. When made the frame should hang clear of the frame and sides of the hive by a quarter of an inch. The ends of the top bar may be cut tapering from an

inch from their extremities, as shown at H, fig. 67. This will leave no chance of the bees propolis the frames to the sides of the hives. Two dummies or dividers should be made of three-quarter-inch stuff 14½ inches long and 8¼ inches deep, and should be nailed to the top bars similar to those made for the frames, only in their case the bars need not be slit up as for the foundation. A piece should be cut out of the centre of the bottom of the divider to correspond with the opening in the hive front, also to allow a passage at the back of the frames to the feeder, as T in fig. 68. In another letter we will speak of the roof, of the feeding arrangement, and of winter and summer arrangement of the hive.—P. H. P.

TRADE CATALOGUES RECEIVED.

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Roses.*

Bruant, Poitiers, France.—*List of New Begonias.*

J. L. Watson, Manor Road, Gravesend.—*List of Bulbs.*

E. Gill, Victoria Fernery, Lynton, North Devon.—*List of British and Exotic Ferns.*

Louis Van Houtte, Ghent, Belgium.—*Catalogue of Hardy Herbaceous Plants, Roses, and Fruit Trees.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Black Hamburgh Grapes (*J. Gleave*).—The bunch, of which you have sent us a photograph, and which you stated weighed 4 lbs. 10½ ozs., and the berries good and well finished, was a very good one indeed, and highly creditable to you as a cultivator.

Plunging Hyacinths (*Doubtful*).—You have nothing to fear in burying the pots in the open air with cocoa-nut fibre refuse. They will be far better there than in the greenhouse. Nor is a cold frame necessary. The finest Hyacinths that are exhibited in London every year are buried 5 or 6 inches deep with the material above mentioned in the open air. Care must be taken that the pots are not stood on soil that is full of worms, but rather on a very hard surface impenetrable by worms, or on a thick layer of sharp ashes.

Gardener's Appointment (*W. D.*).—Your letter of last week was not preserved; and as you have not repeated the names of your past and present employers, we are unable to make the notification you requested. Full and accurate particulars, with plainly written names and addresses, are indispensable in cases of this kind. Last week you omitted your own name; this week you have omitted the name and address of your late employer.

Rose Catalogue (*Rosarian*).—We presume you mean the Catalogue of the National Rose Society, which we think can be had from the Rev. H. H. D'Ombraim, Westwell Vicarage, Ashford, Kent, in return for seven penny stamps. We do not understand what you mean relative to the publication of "our observations in the spring." If you will explain the nature of the "observations" we will endeavour to answer your question.

Roses for Arches (*F. J.*).—The free-growing Ayrshire Roses, such as Alice Grey, Bennett's Seedling, and Splendens, are suitable for covering arches and arbours, as also are the Boursault Roses Amadis, elegans, and inermis. You may add also the evergreen Rose Félicité perpétuelle. These are all free, indeed more or less rampant growers, and are very effective when covered with their great clusters of flowers. If you desire Roses less floriferous, but produce better blooms over a longer period, plant such varieties as Gloire de Dijon, Belle Lyonnaise, Reine Marie Henriette, Cheshunt Hybrid, with the climbing forms of Victor Verdier, Jules Margottin, Bessie Johnson, and Charles Lefebvre, also the vigorous-growing Madame Clemence Joigneaux. You do not say how many you require, but probably we have named sufficient.

Vines and Brambles (*Idem*).—The instructions to which you refer on planting Vines are quite sound. A method of planting in summer which is not named in the work will not, we presume be suitable in your case. Both the mixtures to which you allude are good when properly applied, but we do not find it necessary to use either of them, nor to smear the rods with any pigment. You cannot err by planting the Parsley-leaved Bramble that was referred to last week.

Culture of Cypripedium Calceolus (*C. D.*).—The plant concerning which you inquire is a native of Britain, and therefore quite hardy; but it may be advantageously grown in a frame, and, if it is desired, in a cool house, as it may be then had in flower earlier in the season. The compost should consist of peat, fibrous loam, and sand, with a few pieces of rough limestone or sand, draining the pots thoroughly. The pots can be plunged in ashes, cocoa-nut fibre refuse, or other light material. During the winter very little water will be needed, but it is best not to allow the soil to become dust-dry. If it is desired

to grow the plant out of doors, a well-drained and moderately sheltered site on the shady side of a rockery should be selected, where with other hardy terrestrial Orchids it will give little trouble. The variety you name differs only from the species in the larger size of the flowers, and similar treatment suits both. They can be either planted or potted at the present time.

Culture of Cassia corymbosa (*Z. B.*).—The plant of which you sent a spray is a native of Buenos Ayres, and was introduced to this country at the close of the last century. It is a member of the natural order Leguminosæ, and bears the name given above. It succeeds well in a greenhouse or other cool house, and also does well out of doors in the summer; but it is not hardy, and it would not be safe in a border during the winter unless the situation is very warm and sheltered. A compost of turfy loam, a little well-decayed manure, leaf soil, and sand meets its requirements; but it will grow fairly well in almost any ordinary garden soil. Your plant is in excellent health, the foliage being remarkably vigorous. The best plan would be to transfer it to a conservatory, where it could be trained to a wall, pillar, or roof.

Exhibiting Berry-bearing Plants (*F. D. C.*).—It is impossible for us to answer your question without knowing the stipulations of the schedule of the show at which you propose to compete. The plants may or may not be eligible, everything depending on the intentions of the committee, which either are, or ought to be, defined in the schedule. For an answer to your other question write to Mr. Cannell, Swanley, Kent.

Grapes Shank (*Sigma*).—There is no doubt the Vines would be injured by the ruthless defoliation of last autumn, and on that account ought to have been cropped more lightly and have had better attention this year. Overcropping in this case is the immediate cause of shanking. This, however, is a less calamity than the cause of it—illness. Cut off all the worst bunches, and remove the bad berries from the others promptly. Remove also all weak and superfluous growths or laterals at once, in order that the strongest and best can have full exposure to the light to facilitate their maturation. If you could also remove a portion of the soil from the border (if it is old) down to the roots, add fresh loam, and mulch with manure, you would do all that is practicable to restore the lost vigour of the Vine.

Cissus discolor (*Idem*).—This is the name of the plant of which you have sent an imperfect leaf. It is a stove plant, requiring light porous soil, such as equal parts of turfy loam, peat, and leaf soil, with a free admixture of charcoal. When grown in a shaded position in a moist warm stove the foliage is very beautiful in the summer. Most of the leaves fall in the winter, and the roots must then be kept rather dry, but by no means dust-dry, and the plants in a temperature of 60°. Repotting or top-dressing, whichever may be needed, should be done in the spring when growth is commencing.

Gypsum for Peach Border (*J. E.*).—It is not possible for anyone to state definitely how much gypsum you may incorporate with your Peach border without a knowledge of the constituents of the soil. If it is deficient in lime a quarter of a pound of gypsum mixed with each square yard of soil would be beneficial, or the same quantity spread on the surface and pointed in, but it will not act as a preventive of the Peach mildew. Brehaut's "Modern Peach Pruning" is published at this office, price 3s. 6d., post free 3s. 8d. Brehaut's "Cordon Training" is published by Longmans, but we do not know the price of the work.

Grape-Growing for Market (*H. K.*).—Grapes for market are grown in the same manner as they are grown in private gardens. Mr. Taylor's work which you possess gives sound information on Vine culture, but it refers more particularly to Vines grown on what is termed the extension system, which, although very good when well carried out, may not be the form that you will adopt. Mr. Taylor grows splendid Grapes, but his crops are not so heavy as those of Mr. Witherspoon of Chester-le-Street, whose Vines are confined to single rods, nor of Mr. Thomson of Clovenfords, who trains two rods from the same Vine as a rule, and in some cases more, the rods being about 3 feet apart. Mr. Thomson has written an excellent work on Vine culture, which is published by Blackwood & Sons, and our Vine manual (3s. 3d.) describes several methods of pruning and training Vines. Whether any one or all these works will be sufficient for making you competent as a Grape-grower it is impossible for us to say, as everything depends on your aptitude for turning published instructions to practical account.

Salting Asparagus Beds (*A. B. E.*).—We do not apply salt to our Asparagus beds in the winter as the soil is quite wet enough without it, but we dress the beds in spring and early summer, giving sufficient for preventing the growth of weeds. Before dressing the beds in November we carefully remove a portion of the surface soil, and the manure we add, being partially decomposed, is allowed to decay on the beds, thus forming a rich light medium in which Asparagus delights.

Culture of Chionodoxa Lucilæ (*M. H. R.*).—We have frequently answered queries concerning this plant, and can only repeat that it is quite hardy in the south of England and by no means difficult to grow, succeeding as well as the common hardy Scillas in ordinary light soil where it is not exposed to excessive wet. When grown in clumps in the borders it is very pretty and flowers freely.

Gardenias Unhealthy (*N. G.*).—If you have sent us a fair sample of the plants they are certainly far from being satisfactory. We should first of all repot them, removing any loose soil from the roots, and place them in clean well-drained pots smaller than those they are now in, using a compost of light turfy loam, fibrous peat, and leaf soil in equal parts, with a free admixture of charcoal broken small and silver sand. We should then plunge the plants if possible in a bottom heat of 85° to 90°, and apply water with great care, giving sufficient to keep the soil healthily moist without saturating it. This, with judicious syringings governed by the state of the weather, and a temperature of 70° as a minimum, would induce fresh root-action. This accomplished we should prune the plants rather severely, removing at least all such growths as you have enclosed, and should then expect healthy shoots and dark green foliage to follow. This effected, the plants could be kept clean and healthy by copious supplies of water, frequent syringings, and a very moist warm atmosphere.

Pears Cracking (*W. H., Eastbourne*).—The precise cause of the cracking of your Pears is not easy to determine. The fruit is usually most liable to be injured in this manner when the trees are growing in poor sandy soil, but we have often seen them seriously affected when the soil has been good. In this case we attribute the evil to frost in spring injuring the tissue of the fruit and depriving it of its elastic or expansive power; hence the ruptures, which injure if they do not destroy the fruit. Again, we suspect that imperfect fertilisation often results in the fruit cracking, as few fruits that are seriously injured have sound and fertile seeds, while those specimens which are sound on one side and split on the other, usually have more or less sound kernels on the sound side.

and withered abortive seeds on the other. This is not always the case, but is undoubtedly so in by far the majority of fruits that we have examined, and it was so in the specimen you have sent. As a remedy we can only suggest that if the soil is sandy that the roots be placed in a heavier and more fertile medium, top-dressing with manure to keep them near the surface, and that the blossoms and embryo fruits be protected in the spring, both against excessive wet, which prevents the dispersion of the pollen, and against frosts and sleet that injure the cuticle of the young fruit. By adopting these methods with a tree on a wall that had the fruits seriously cracked, we have not since failed to have good crops of fine smooth Pears.

Winding Rockery (J. T. W.).—We are very willing to assist you in this matter, but it is not easy to do more than give you a general idea for carrying out work such as your employer desires to have done, and we cannot better do this than by submitting a plan that was prepared by Mr. Abbey some years ago.



Fig. 70.

brought from the woods, and on some are seedling Ferns, Moss, and Lichens that impart an appearance of age to rockwork. Wood rots, and the stones that are above or on it fall, and the work has to be done over again at a time when the plants are about their best. Fix every stone firm, and lay them so as to leave some good-sized openings for soil (some large and some small), laying them in such a position as to be examined in case of an accident, and so go on until the whole of the rockwork is completed.

Names of Fruits (S. G. S.).—1, Passe Colmar; 2, Bergamotte Destricker; 6, Flemish Beauty. We do not recognise the others. They are perhaps local varieties, and one was quite rotten. (H. M.).—We have examined the specimens carefully, but all we can say is that 22 is not Nonsuch, 44 not Gloria Mundi, and that 57 is Hollandbury. The others we do not recognise. They are probably local varieties, of which there are so many in your district. (H. Knowles).—The cider Apple of which you have sent specimens in all probability never had a name, and if you have supplied us with a fair sample of the fruit it is certainly not worthy of one.

It is for a structure 100 feet long by 25 feet wide, and, therefore, much too large for your house, and you probably do not require a fountain. This being so, if you take the upper half of the plan and reduce the sizes of the rockwork, adopting such modifications in outline as will suggest themselves as suitable, you will be able to carry out your project. The ground plan given is merely to point out to those who have not seen anything of the kind, or have not the eye to draw from certain given details any correct idea of the effect intended to be produced. a, Fountain—(i.e., jet quarter inch diameter, or less, according to the supply of water.) b, Well of water—that is, fed by filtration from the top of same. c, Waterfall, height of the same about 6 feet, one-inch-bore supply-pipe, or less. d, Cistern that receives the water from the waterfall c. e, Open drain formed of stones, with the joints cemented 1 foot wide (stone ridge-coping stones are, with the joints cemented, capital materials for the purpose). f, Cave, with stone seat. g, Subterranean passage. h, Dropping well. i, Walk, sunk here about 2 feet below its ordinary level, not making any steps, but allowing the flagstones to slope irregularly. k, Ditto to about 3 feet. l, Ditto to about 4 feet. m, Steps leading to n, where there may be placed a rustic iron chair. The most attractive view of the house when completed will be from this point. n, Place for seat and platform from which to view the house. o, Doorway 5 feet wide. p, Drain that conveys the waste water. q, Water-pipe that supplies the a b c h. r, Point of entrance of the hot-water pipe. The figures 1, 2, 3, &c., show the height of the rockwork in feet where the figure is fixed, that height being reckoned from the path, whether the same be level or sunk. The material throughout should consist of massive fragments of free-stone rock that have been exposed to the weather for a considerable length of time. Old shaded stones are frequently covered with Mosses when they are

Names of Plants (H. K.).—Miltonia Clowesi. (L. B.).—Cassia corymbosa, see reply above. (J. W.).—1, Sedum spectabile, a Japanese species much used in the London parks and in gardens generally; 2, Polygonum vacciniifolium, a pretty dwarf species, very suitable for culture in pots or trailing over a rockery. (J. H.).—1, Quercus Phellos latifolia; 2, Quercus cerris; 3, Antennaria tomentosa; 4, Justicia speciosa.

COVENT GARDEN MARKET.—NOVEMBER 1ST.

THE supplies and character of the trade generally remain substantially the same as last week.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	2	0	7	0	Lemons.....	case	20	0	30	0
Apricots.....	doz.	0	0	0	0	Melons.....	each	2	0	3	0
Cherries.....	½ sieve	0	0	0	0	Nectarines..	dozen	0	0	0	0
Chestnuts.....	bnshel	0	0	0	0	Oranges.....	100	6	0	10	0
Currants, Black..	½ sieve	0	0	0	0	Peaches.....	dozen	0	0	0	0
„ Red....	½ sieve	0	0	0	0	Pears, kitchen..	dozen	1	0	2	0
Figs.....	dozen	0	6	1	0	„ dessert.....	dozen	1	0	2	0
Filberts.....	fb.	0	6	0	0	Pine Apples, English	fb.	3	0	5	0
Cobs.....	100 lb.	0	0	45	0	Raspberries.....	fb.	0	0	0	0
Gooseberries....	½ sieve	0	0	0	0	Strawberries....	lb.	0	0	0	0
Grapes.....	fb.	1	0	3	0						

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	0	Lettuces	score	1	0	1	6
Asparagus.....	bundle	0	0	0	0	Mushrooms.....	punnet	1	0	1	6
Beans, Kidney	100	1	0	0	0	Mustard & Cress ..	punnet	0	2	0	3
Beet, Red.....	dozen	1	0	2	0	Onions.....	bch.	0	6	0	0
Broccoli.....	bundle	0	9	1	6	Parsley..... doz.	bunches	3	0	4	0
Brussels Sprouts..	½ sieve	1	6	2	0	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Peas	quart	0	10	0	0
Capsicums.....	100	1	6	2	0	Potatoes.....	cwt.	6	0	7	0
Carrots.....	bunch	0	4	0	0	„ Kidney.....	cwt.	6	0	8	0
Cauliflowers.....	dozen	2	0	3	0	Radishes..... doz.	bunches	1	0	0	6
Celery.....	bundle	1	6	2	0	Rhubarb.....	bundle	0	4	0	6
Coleworts.....doz.	bunches	2	0	4	0	Salsafy.....	bundle	1	0	0	0
Cucumbers.....	each	0	4	0	6	Scorzonera.....	bundle	1	6	0	0
Endive.....	dozen	1	0	2	0	Scakale.....	basket	0	0	0	0
Fennel.....	bunch	0	3	0	0	Shallots	fb.	0	3	0	4
Garlic.....	fb.	0	6	0	0	Spinach.....	bushel	3	0	0	0
Herbs	bunch	0	2	0	0	Tomatoes.....	fb.	0	3	0	6
Leeks.....	bunch	0	3	0	4	Turnips.....	bunch	0	2	0	4



POULTRY AND PIGEON CHRONICLE.

NEGLECTED PASTURES AND WASTE LANDS.

ON former occasions we have alluded to subjects very nearly connected with our present one, but more especially we may refer the home farmer to our article on farming permanent pastures on February 5th, 1880, in this Journal, and again another article on the improvement and manuring of pastures on March 3rd, 1881. We wish, however, now to deal with neglected pastures, and also where farms have fallen into the hands of owners in consequence of the failure of tenants during the agricultural depression. It is especially desired to illustrate what has been done under such adverse circumstances in improving waste lands without the expenses being incurred of fallowing and cleaning.

Numerous entailed estates have been charged with heavy encumbrances by the "dead hand," the present or reputed owners have then unfortunately little or no means (in consequence of the reduction in the rentals and value of lands) to enable the home farmer or estate agent to adopt what has been frequently advocated by scientific as well as practical writers as being the best method of laying down arable land for pasture. Then arises a very serious question, at a very serious crisis, for "necessity knows no law," What is to be done with land left in a state of comparative waste by the previous impoverished occupiers? it being also in many cases extremely foul with couch and poor for want of manure. Under any circumstances, however, the question cannot be replied to off-hand, simply because we must ask other questions before the first can be answered. Is the land suitable for pasture? or is it better adapted for cereal culture, although suitable for pasture? If the latter, and it occurs that a farm comes to hand for the home farmer to manage, or for the agent to let, although the land may be foul and gene-

rally out of condition, the driest and best loamy soils must be cultivated for corn as well as roots, and must be managed or let for that purpose. If the land is of strong clay and flat-lying or hilly, if of a north or north-eastern aspect, it had better go into grass, except the altitude should be great, then a crop of timber offers the best opportunity for profit. But then we are brought face to face with the expenses of cultivation and planting, and, therefore, it must run to waste as hillside or mountainous land, and capable of rearing only a few forest ponies or horned sheep, such as those kept in the hill districts of Scotland, or the small white-faced horned sheep of Wales and some of the western counties of England; in this case no outlay will be required except for the first purchase of the stock.

Let us now refer to hilly strong land, as well as the flat-lying clay soils, and of these soils many thousand acres of them have within the past six or seven years fallen into or been returned on the hands of the proprietor. Supposing that the land is foul with couch or twitch, the distinction we make is that couch means the strong-leaved and white-rooted grass which lies deeply rooted in the soil; the twitch we consider is the creeping or narrow-leaved variety which runs upon the surface, with shallow bunches of roots which adhere to the surface soil from nearly every knot or joint in the stems of the grass, and thus forming a mat on the surface. In either of these cases, if we go to the expense of tilling the land it will be very costly to eradicate them. In fact on the cultivated arable land, if these grasses by bad farming have prevailed for some years their seeds will have been dropped and buried in the soil by the cultivation; and if we clean the land ever so well and sow the best kinds of permanent grass, still the couch or twitch will propagate from the seed and claim part possession of our surface, upon which we have made a large expenditure for the purpose of destroying them. When this occurs it is of the utmost importance to consider which will gain the ascendancy in the pasture, but this will entirely depend upon the course of management both as to manure and the system of feeding—in fact the general management of the turf, whether it should be cut for hay or be fed off only by live stock. Even then it depends upon the kind of stock which are kept and the food they consume, for it must be remembered that the feeding is also a manurial question, and must be allowed for and considered in any outlay made for artificial manures, or the value of farmyard or town manure, applied either by themselves or mixed with earthy compounds.

It is also necessary to consider in what state each field is as regards the last crop, whether it is now in stubble of corn crops or in Clover lea, or covered with weeds. Another point to be considered is, In what state is the surface? Does it lie in small ridges, or is it laid into the wide high-backed ridges peculiar to some of the midland and western counties with deep furrows? It is almost impossible to obtain an even sward or growth of turf on these small ridges, the furrows being only a series of hollows to hold water on the surface, unless it has been effectually under-drained with pipes in a judicious manner. The wide high-backed ridges, however, lie comparatively high and dry, and are more easily cleared of the water on the surface even though the land be strong, and if draining is required it is more easily effected by a pipe drain in each furrow. It is clear that if no cultivation can be done, or as little as possible, to produce a profitable turf in accordance with the capabilities of the soil, it is most important to understand which soils should be rejected as hopeless for the purpose of forming into pastures. We should say that sandy, thin, gravelly, peaty, and thin chalky land should be considered as unprofitable in pasture, and seldom worth the expenses of seed and tillage even under the best of management, unless production can be accomplished by irrigation either upon the ridge-and-furrow system with flood water, or upon the principle of catch meadows, where the position of the land enables the water with or without

flood deposits or liquid manure to be spread over large areas of land assisted by the peculiar incline of the surface. There can be no doubt that in various districts of the kingdom, but more especially in the western, midland, and north-western counties, there are large areas now comparatively waste, where farms and parts of farms of considerable extent can be turned to a profitable purpose as pasture, if the points to which we have previously alluded are considered in relation to the varying circumstances enumerated.

After these prefatory remarks we shall endeavour to describe land under varying conditions of profitless and wasteful occupation, and explain the means whereby they may be renovated and improved, to enable the home farmer to accomplish as much as may be possible under the circumstances by which he may be surrounded. It has been asserted, and even considered as a rule, that a good pasture cannot be maintained from the time it is seeded until it becomes a permanent pasture with a large accumulation of humus on the surface, without a break or period of barrenness after the first few years. But we deny that this is a matter that cannot be avoided, we only view it when it happens as resulting from want of care and intelligence in various ways. First of all, if the annual or even perennial grasses are used in conjunction with the best permanent meadow grasses, they will for a time promise well, but when they have decayed the surface is left bare to some extent, giving an opportunity for weeds or inferior grass to get possession. This vacancy, caused by the failure of the annuals and the time which may intervene before the permanent grasses can get full possession of the surface, is caused in several ways. First by the serious mistake of not sowing exclusively the permanent grasses and Clovers; also if the seed has been selected without judgment, and by trusting to others that which should be done by the home farmer himself, various failures may occur, such as old seed mixed with new, seeds uncleaned, and of sorts not suited to the soil. Still, much depends upon the condition of the land and manure applied as well as its fitness for the soil; also, if unsuitable stock are allowed to injure the young seeds, the pasture as a permanent one will be delayed. But the greatest cause of failure of the young plants of grass is because the land is not made rich enough with properly selected manures to maintain their vigorous growth.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The weather has been very suitable for ploughing and pressing the Clover lea on dry soils for Wheat, because, although the late rains have been rather heavy for the strong flat-lying soils with a fallow surface, the greater portion of these soils intended for Wheat have been seeded before this date. Still, it is not too late if the weather should prove open and dry enough to drill the Wheat and work it off, and complete the work simultaneously; and this is really necessary in the month of November, for the records of our climate in this month are that slight morning frosts or rains prevail, both of which cause a delay of the operations of seeding for Wheat, and the work consequent upon it. Where the land is composed of dry loams, gravel, or sandy loam, the first fortnight in November is a good time for drilling Wheat, and especially if the land is in a high state of cultivation and situated in a warm and sheltered district. There is no fear of the Wheat becoming what is termed winter-proud if sown in November. It is, however, quite necessary to sow from $2\frac{1}{2}$ to 3 bushels of seed at this time of the year, as the small birds and rooks are very likely to search for the grain when it shows the first blade, and they destroy much of it, especially after ordinary drilling, as the seed lies near the surface; but when the seed is deposited by the press drill it falls into the grooves formed by the rings of the presser, and is consequently buried a good depth under the surface, and is not so likely to be injured by the birds. The extra seed we advise is especially necessary, too, upon farms on an estate where the home farmer is called upon to conduct his operations when game is preserved thereon, particularly where rabbits prevail, for in this case there are frequently a large number of rats, which shelter themselves in the banks and burrows, and we have known large areas of Wheat destroyed by them, as they search for the grain as soon as germination commences. These, together with rabbits, are a sad nuisance where encouraged to any extent. We, however, do not object to rabbits being preserved and reared for profit upon rough and waste lands, but they should be confined by wire-net fencing

within certain limitations, to prevent injury upon the cultivated lands and valuable pastures. There is plenty of employment for the odd horse in carting roots for the cattle in their boxes, also Cabbages for the dairy cows, carrying hay for the farm horses, and also roots, such as red or white Carrots, and straw for litter for all the animals on the farm which are confined in pens, stalls, or stables.

Hand Labour.—The pulling and storing Mangolds will still be going on, and this may be best done by men, women, and boys, casting into heaps and covering with the leaves, the carting and storing to be done by the horses and carts at any time when the drying intervals of weather occur. Some little supervision by the home farmer is necessary as to the mode of taking up the roots of Mangolds, for we do not suffer the people employed to cut the greens off, so as to sever any portion the crown of the roots, but they should be cut so that all the leaves shall fall separate at the time of cutting. This mode will save the crown and heart of the roots untouched, and this we find necessary, because the roots are then capable of throwing out a little yellow leaf. This secures them against decay, because they have vitality in the root, as proved by the sprouting. If the field producing the Mangold should be at a considerable distance from the farm it is well to make the store heap on the margin of the field, so that the labour at this busy time may be diminished. Water-furrowing on the recently sown Wheat land should be done daily, in order that when heavy rains follow it may escape to the proper outlets and not sodden the surface, to the injury of the young Wheat plants. Hedging, ditching, and banking will be work for some men now, others will be required in the meadows at trenching, so as to prevent water lying on the surface, which breeds rushes or coarse sour grass. The water meadows, too, should receive the usual attention, for they should now be in flood and receiving the benefit of deposits from the hills left by flood water after the recent heavy rains. Cutting the wood in the hedge-rows for hurdles should now be done; also all the ditches which receive the spring drainage in the enclosed districts should be scoured to prevent stoppages at the outlets of the pipe drains.

Live Stock.—We never recollect sheep so dear before, especially the middling and lower grades, commonly termed calls; but it must be remembered that vast improvements have been made in the sheep stock of the kingdom, and that there are but few inferior animals now as compared with thirty years ago. This, therefore, tends to the higher average of prices. We have seen Hampshire Down lambs of nine months old sold from 77s. to 86s. each in lots of one hundred in number, but were sold for mutton weighing, as we estimated them, on the average at from 12 stones of 8 lbs. to 13 stones per hundred, some individual animals reaching the great weight, for their age, of from 14 to 15 stones of 8 lbs. each. Horned cattle are dear also, but not so dear after the rate as sheep; in fact, some of the importations from Ireland are really well-bred, show good outlines and deep long coats. We have noticed this specially amongst the young stock under a year old; these in good condition, both heifers and steers, selling at six guineas each. These, at the price, considering their breed and quality, will pay better for wintering than sheep. Dairy cows should now be given Cabbages on the driest pastures, as the grass is getting both stale and short. In order to maintain a full supply of milk some farmers, instead of encouraging the flow milk, allow the cows to go dry soon after this time. We object to this entirely, for it has the effect of cows laying on fat internally, and endangering success at calving time.

POULTRY AND PIGEONS

SPOILING THE DORKING.—No. 1.

IN your "Poultry Notes at Wolverhampton Show" in last week's number I find these words: "Coloured Dorking cocks, first (Smyth) was large and good in most points; his earlobe was white, but the Judge, rightly perhaps, does not seem to regard this as a demerit." Why should he? The true Dorking had a white earlobe, or very nearly so, and it was not until it was crossed with the Asiatic breeds that the red earlobe appeared. Then the wisecracks who had spoilt the Dorking in the crossing, in all its fine qualities as a table fowl, claimed as a point the red earlobe. For my part I look at the red earlobe as *one* of the proofs of the mongrelism of the present so-called Dorking. On no account would I purchase for breeding purposes a bird with a red earlobe. I should fully expect, and I have but little doubt that my expectation would be realised, that I should have chickens with sooty feet. The dark colour is another proof of the mongrelism of the present Dorking. Let us look at what the present breed has in common with the old and true. In the old, there were the Grey, the Brown, the Bay, the Silver-Grey, the Speckled, and the White, besides the Cuckoo. Now the judges have reduced the colours to the Dark (nearly black, never a Dorking colour), the Cuckoo, Silver-Grey (is now not a *silver* grey but a dirty brown grey), and the White. The angle of the carriage of the

Dorking was much more upright than the present, which tends towards the horizontal Asiatic carriage. They have got rid of the rose-combed variety as nearly as possible, and many of the single combs have sprigs at and about the large part of the comb, as could be seen at the Tonbridge Wells Show. They have produced sooty feet and white spotted with lead colour, as could also be seen at the same Show; and, as the reporter of this Journal noticed, even some of the prizewinners at the Dairy Show were tinted with dark colour. They have thick skins, yellow skins, yellow fat, instead of thin and white; and the flesh is a dirty colour by comparison, red earlobes instead of white, and they have got size and great coarseness of both flesh and bone, long fibre to the flesh instead of the short.

A few years back I knew a stock of good Brown Dorkings. In an evil hour the higgler who bought the young chickens of the henwife persuaded her to have a Dark Brahma cock to breed from. The result was much larger chickens at three months old, much darker in colour, with white legs. The Brahma was then got rid of, the cockerels were chosen from the home produce, the biggest being selected. Now, without any further cross, the whole of the stock have sooty legs and feet, or nearly so, and the colour of the hens and chickens is nearly black. I purchased a brood this year for table purposes; I found they all had dark legs, and the flesh was of a muddy colour comparatively to the original breed. The reason, no doubt, was this: The owner selected the largest (therefore those that most partook of the Brahma element), and so again and again, keeping to the dark colour because it was fashionable, not because it was better in any respect nor prettier; and so more and more Brahma without the feathers on the legs, but the *red* sides to the legs clearly showed that they had been so bred, instead of the pure white colour of the true Dorking. But how come the sooty legs and feet? Why, in this way: The Dark Brahma or Cochin has dark feathers on its legs, and when these are got rid of the stain of the colour remains in the leg, the more so when bred with a white-leg fowl. Yellow and white legs will often make darkish legs. This I have found by experiment with a Dorking and a yellow-legged Game, but more often they have been white. I am deeply sorry to find that there are those who act as judges still giving prizes to sooty-footed fowls. It is very wrong, and it is disheartening to the breeder who is endeavouring to restore the Dorking proper with all its points. Quality is not looked to, but size and colour. Why such a stress should be put on colour I cannot imagine. To me it appears utter nonsense when as a table fowl the Brown, Light Reds, Bays, and the old Grey were far superior in the colour and texture of fat and flesh. For my own part I ignore colour altogether. I intend to breed for the white legs, the full rounded breast, and thin skin, white fat and white flesh; and on no account will I purchase a cock bird to breed from that has a *red* earlobe or the slightest tint of sootiness on his feet, or a black toe-nail; for the latter proclaims its pedigree to my eyes, and I am most likely to get sooty-footed chickens as his produce. It is very uphill work to try and get back to the old sort, and it will take years of patient work; but it is to be done, and I for one mean to work steadily at it. I care nothing for colour; but, if any, I shall try and raise for my own keep the old, scarce, rich, red-brown colour, but that will depend on circumstances. I have this year bred several very dark birds with pure legs, feet, and toe-nails, and by careful selection and watching I hope to get more next year if I am spared.

I find on reference to the *Live Stock Journal* that Mr. Cresswell judged the Dorkings at Wolverhampton Show, and his giving the first prize to a bird with a white earlobe is no more than I should expect from him, as he knows, if anyone does, what a good pure Dorking should be, for I well remember birds of his that were shown long ago. Ah, me! yes, long ago, when Dorkings were Dorkings, and I hope and trust he still has some of the blood left.
—HARRISON WEIR. *October 28th, 1882.*

THE NEW STANDARD OF EXCELLENCE.

HEREWITH I enclose draft Standards of Excellence for Brahmas and Cochins. The Committee of the Poultry Club are anxious, if possible, that these, as also the Standards for Dorkings, Game, and the French breeds, which I shall send you next week, shall be considered and finally settled at the Crystal Palace Show.

The Committee will feel much obliged by your inserting the drafts.

I would remind fanciers that the Standard as now published is merely tentative, and I trust that all interested will aid in making the final Standard as representative as possible, by either sending me their views as to any alterations or additions they may think desirable, or attending the meetings of the fanciers of the various

breeds named above, which I am arranging for the Crystal Palace Show.

All comments published or sent to me, as also the comments of the leading judges, to whom I am sending copies of the drafts, shall be submitted to the fanciers who meet at the Palace. All are invited to attend, and I shall give as early notice as possible of the time and exact place of meeting.—ALEX. COMYNS. *Hon. Sec.*, 47, Chancery Lane, London, W.C. October 30th, 1882.

BRAHMAS.

GENERAL CHARACTERISTICS—COCK.

Beak.—Short, curved, very strong.

Comb.—Triple or pea, erect and firmly set, as small as possible, the centre ridge slightly the highest; all three ridges perfectly straight and evenly serrated, fitting very closely to, and drooping behind to follow the line of, the head.

Head.—Small, rather short, of medium breadth, well rounded, with a slight prominence over the eye.

Eye.—Large, fairly prominent.

Earlobe.—Long in proportion to the size of the wattles, fine in texture, and free from feathers.

Wattles.—Small, well rounded, fine in texture, and free from feathers.

Face.—As smooth and free from feathers or hairs as possible.

Neck.—Long, well arched, covered with ample flowing hackles reaching well down to the shoulders, and free from twisted feathers. A depression should be apparent between the head feathers and the upper hackle feathers.

Breast.—Very full, broad and square, with great depth, carried well forward.

Back.—Broad throughout, short, flat or slightly hollow between the shoulders; the saddle to rise about half way between hackle and tail, and to continue to rise until it reaches the tail coverts.

Wings.—Of medium size, carried horizontally, free from twisted or slipped feathers, tucked up under saddle feathers, which should be of ample length.

Tail.—Of medium length, rising somewhat from the line of the saddle, but not quite upright; the quill feathers to spread well out, and the top quill feathers to form, if possible, what is known as the black cock tail (?).

Tail Coverts.—Broad, abundant, well curved, nearly covering the quill feathers.

Thighs.—Large and powerful, well covered with feathers, so set on that the lower feathers of the breast cover the thighs in front.

Hocks.—Amplly covered with soft rounded feathers, or with quill feathers provided the latter be accompanied with proportionately heavy foot-feathering.

Fluff.—Soft and very abundant, covering the hind parts and standing out well behind the thighs.

Legs.—Of medium length, powerful, with plenty of bone, wide apart, the scales to be as smooth as possible.

Leg Feather.—As profuse as possible, standing out well from the leg, and extending well under the hock feather and to the extremity of the middle and outer toes. Good foot feather without vulture hock to have a preference.

Toes.—Straight, large, and spreading.

General Shape.—When viewed in profile, very deeply and squarely built; when viewed from front or rear, broad and compact.

Carriage.—Lofty and bold, the breast bone to be carried horizontally.

GENERAL CHARACTERISTICS—HEN.

Beak.—Short, strong, curved.

Comb.—Triple or pea, erect and firmly set, as small as possible, the centre ridge slightly the highest; all three ridges perfectly straight and evenly serrated, fitting very closely to, and drooping behind to follow the line of, the head.

Head.—Small, rather short, of medium breadth, well rounded, with a slight prominence over the eye.

Eye.—Large, fairly prominent.

Earlobe.—Long in proportion to the size of the wattles, fine in texture, and free from feathers.

Wattles.—Small, well rounded, fine in texture, and free from feathers.

Face.—As smooth and free from feathers or hairs as possible.

Neck.—Short, well arched, covered with ample flowing hackles reaching well down to the shoulders, and free from twisted feathers. A depression should be apparent between the head feathers and the upper hackle feathers.

Breast.—Very full, broad and square, with great depth, carried well forward.

Back.—Broad throughout, short, flat or slightly hollow between the shoulders; the cushion to rise about half way between hackle and tail, and to continue to rise until it reaches the tail coverts.

Wings.—Of medium size, carried horizontally, free from twisted or slipped feathers, well tucked up under cushion feathers.

Tail.—Of medium length, nearly upright, the quill feathers to spread well out, those below gradually diverging like a fan.

Tail Coverts.—Full, and extending nearly to the extremity of the tail.

Thighs.—Large and powerful, well covered with feather, so set on that the lower feathers of the breast cover the thighs in front.

Hocks.—Amplly covered with soft rounded feathers, or with quill feathers provided the latter be accompanied with proportionately heavy foot-feathering.

Fluff.—Soft and very abundant, covering the hind parts and standing out well behind the thighs.

Legs.—Very short in proportion to size of bird, strong, and wide apart.

Leg Feather.—As profuse as possible, standing out well from the leg, and extending well under the hock feather and to the extremity of the middle and outer toes. Good foot feather without vulture hock to have a preference.

Toes.—Straight, large, and spreading.

General Shape.—When viewed in profile, very deeply and squarely built; the body carried very near the ground. When viewed from front or rear, broad and compact.

Carriage.—Sedate, the breast bone to be carried horizontally.

POINTS OF COLOUR IN DARK BRAHMAS.—COCK.

Comb, Face, Deaf Ear, and Wattles.—Bright red.

Head.—Silvery white.

Eye.—Orange-red, pearl or grey.

Beak.—Black or yellow and black.

Neck Hackle.—Pure silvery white, densely and sharply striped with brilliant black in the centre of each feather.

Breast.—Intense glossy black, or such black evenly mottled or laced with white.

Underpart of Body and Thighs.—Corresponding in colour with breast.

Back and Shoulder Coverts.—Silvery white, except between the shoulders, where the feathers should be glossy black laced with white.

Saddle.—Silvery white striped sharply with glossy black.

Wing Bow.—Silvery white. *Greater and Lesser Wing Coverts.*—Forming a distinct bar of glossy black. *Secondaries.*—White on outside web except at end, where there is a black spot. Black on the inside web. *Wing Primaries.*—Black mixed with occasional feathers having a narrow white edge on outside of web.

Tail.—Black.

Tail Coverts.—Glossy black, the upper two finely laced with white.

Legs.—Orange-yellow.

Leg Feather.—Black or black slightly mottled with white.

HEN.

Comb, Face, Deaf Ear, and Wattles.—Bright red.

Head.—Silvery white or white striped with black or grey.

Eye.—Orange-red, pearl, or grey.

Beak.—Black or yellow and black.

Hackle.—Silvery white sharply striped with black, or pencilled as on body.

Ground Colour of Body.—Pullets, any shade of clear grey. Hens, the same; or may be more chestnut in tint, if not too brown, but the former clear grey colour much preferable. The colour to be uniform throughout.

Pencilling.—Black or a darker shade than the body colour, very clearly defined, following the outline of each feather. As uniform in character as possible over the body.

Tail.—Black or black edged with grey.

Legs.—Orange-yellow, the feathers to be well pencilled.

POINTS OF COLOUR IN LIGHT BRAHMAS.—COCK.

Comb, Face, Deaf Ear, and Wattles.—Bright red.

Head.—Silvery white.

Eye.—Orange-red, pearl, or grey.

Beak.—Black or yellow and black.

Neck.—Silvery white striped with black, the striping being more dense at the lower part of the hackle.

Breast.—White.

Underpart of Body.—The surface to be clear white, but the fluff may be grey in the underpart.

Thighs (including hocks).—Clear white.

Back and Shoulder Coverts.—White.

Saddle.—White or white slightly striped with black; white preferable.

Wing Bow and Coverts.—Silvery white. *Primaries.*—Black or black edged with white. *Secondaries.*—White on outside web, black on inside web.

Tail.—Black.

Tail Coverts.—Glossy black, the two upper ones evenly laced with white.

Legs.—Orange-yellow.

Leg Feather.—White or black and white mixed.

HEN.

Comb, Face, Deaf Ear, and Wattles.—Bright red.

Head.—Silvery white.

Eye.—Orange-red, pearl or grey.

Beak.—Black or yellow and black.

Neck.—Silvery white striped with black, the striping being more dense at the lower part of the hackle; the black centre of each feather to be entirely surrounded by a white margin.

Breast.—White.
Back.—Pure white with or without grey underfeather.
Wing Bow.—Silvery white. *Primaries*.—Black or black edged with white. *Secondaries*.—White on outside web, black on inside web.
Tail.—Black.
Tail Coverts.—Black laced with white.
Thighs (including hocks).—Clear white.
Fluff.—White on surface, but may be grey in the underpart.
Legs.—Orange-yellow.
Leg Feather.—White or black and white mixed.

DARK BRAHMAS.

NUMERICAL VALUE OF POINTS.—COCK.

Points to be deducted for defects.

Bad head	3
Defective comb	6
Scanty hackle	4
Want of cushion	5
Want of fluff	4
Defective leg feather	6
Bad shape or carriage of tail	3
Splashes of white in tail	5
Primaries out of order	6
Pale legs	2
Curved toes	3
Stain of white in deaf ear	2
Breast patched or splashed with white	7
Impure colour of white	8
Want of stripe in hackle	5
Other defects of colour	6
Want of size	10
Defects of symmetry or carriage	10
Want of condition	5

100

A perfect bird to count 100 points.

DISQUALIFICATIONS.—COCK.

Trimming or dyeing of any kind; comb other than pea; twisted hackle; vulture hock accompanied with scanty foot feather (?); total absence of leg feather; deformity of any kind; twisted wing feathers; white legs; much red or yellow in plumage; great want of size in adults; total want of condition; much white in tail; if shown with a hen, birds not matching fairly well.

NUMERICAL VALUE OF POINTS.—HEN.

Points to be deducted for defects.

Bad head	4
Defective comb	4
Scanty hackle	4
Want of cushion	6
Want of fluff	4
Defective leg feather	7
Bad shape or carriage of tail	3
Pale legs	2
Curved toes	3
Stain of white in deaf ear	2
Streaky breast	8
Want of clearness and evenness in ground colour	8
White in foot feather	3
Shank feather not pencilled as the body	3
Want of uniformity in pencilling	10
Other faults of colour	4
Want of size	10
Defects of symmetry or carriage	10
Want of condition	5

100

A perfect bird to count 100 points.

DISQUALIFICATIONS.—HEN.

Trimming or dyeing of any kind; comb other than pea; twisted hackle; vulture hock accompanied with scanty foot feather; total absence of feather; deformity of any kind; twisted wing feathers; white legs; utter want of pencilling; patches of brown or red; great want of size in adults; total want of condition; if shown together, birds not matching fairly well.

LIGHT BRAHMAS.

NUMERICAL VALUE OF POINTS.—COCK.

Points to be deducted for defects.

Bad head	3
Defective comb	6
Scanty hackle	4
Want of cushion	5
Want of fluff	4
Defective leg feather	6
Bad shape or carriage of tail	3
Splashes of white in tail	5
Primaries out of order	6
Pale legs	2
Curved toes	3
Stain of white in deaf ear	2
Black in breast	4
Black in fluff	3
Impure colour of white	8
Want of stripe in hackle	5

Striping on saddle	2
Other defects of colour	4
Want of size	10
Defects of symmetry or carriage	10
Want of condition	5
<hr/>	
100	

A perfect bird to count 100 points.

DISQUALIFICATIONS.—COCK.

Trimming or dyeing of any kind; comb other than pea; deformity of any kind; twisted hackle; vulture hock accompanied with scanty foot feather; total absence of leg feather; twisted wing feathers; white legs; buff on any part of plumage; great want of size in adults; total want of condition; if shown with a hen, birds not matching fairly well.

NUMERICAL VALUE OF POINTS.—HEN.

Points to be deducted for defects.

Bad head	4
Bad comb	4
Scanty hackle	4
Want of cushion	6
Want of fluff	4
Defective leg feather	7
Bad shape or carriage of tail	3
Pale legs	2
Curved toes	3
Stain of white in deaf ear	2
Cloudy, pale, or streaky hackles	10
Black splashes	10
Impure white	10
Other faults of colour	6
Want of size	10
Defects of symmetry or carriage	10
Want of condition	5

100

A perfect bird to count 100 points.

DISQUALIFICATIONS.—HEN.

Trimming or dyeing of any kind; comb other than pea; twisted hackle; vulture hock accompanied with scanty foot feather; total absence of feather; deformity of any kind; twisted wing feathers; white legs; buff on any part of plumage; great want of size in adults; total want of condition; if shown together, birds not matching fairly well.

COCHINS.

GENERAL CHARACTERISTICS.—COCK.

Beak.—Short and stout at base, tapering to the point and slightly curved.

Comb.—Single, rather small, fine in texture, perfectly straight and upright, evenly serrated, free from side sprigs, and symmetrically curved from base of the beak to the back of the head.

Head.—Rather small, and neat in proportion to the size of the bird.

Eye.—Bright and expressive.

Deaf Ear.—Well developed, and fine in texture, hanging nearly as low as the wattles.

Wattles.—Rather long, fine in texture, and neatly rounded at the bottom.

Face.—Smooth and fine in texture.

Neck.—Short, well curved, carried rather forward, and abundantly covered with long hackle feathers, which should reach well on to the back.

Breast.—Very broad, deep, full and rounded in appearance.

Back.—Short and broad, rising towards the tail, and well furnished with saddle feathers, which should be soft and long.

Wings.—Small, the primaries tightly clipped up under the secondaries; the whole carried close to the body. The end hidden by the saddle.

Tail.—Small and full, rising slightly from the saddle; free from sickle feather.

Tail Coverts.—Soft and abundant, curving over and nearly covering tail.

Thighs.—Short, thick, and wide apart; abundantly covered with soft feathers.

Hocks.—Completely covered with soft feathers, which should curl round the joint and stand well out. Stiff feathers called "vulture hocks" objectionable, but not a disqualification.

Fluff.—Very full, abundant, and soft, standing out so as almost to hide the thighs.

Legs and Leg Feather.—Legs short, thick, and heavily feathered on the outside. The feathers should stand well out from the leg.

Toes.—Strong and straight; the middle and outer toe well feathered to the end.

General Shape and Carriage.—Broad, deep, massive, and rounded in appearance; the carriage bold, the head carried rather forward, and the forepart of the body rather low.

GENERAL CHARACTERISTICS.—HEN.

Beak.—Short and stout at base, tapering to the point, and slightly curved.

Comb.—Small, single, straight, evenly serrated, and fine in texture.

Head.—Small and neat.
Eye.—Bright and expressive.
Deaf Ear.—Rather large.
Wattles.—Small and neatly rounded.
Face.—Smooth and fine in texture.
Neck.—Short, carried rather forward, and abundantly covered with soft hackle feathers reaching well on to the back.
Breast.—Broad, deep, full, and rounded.
Back.—Short and broad, first rising into an abundant cushion, and then falling slightly to the tail.
Wings.—Small and tightly clipped up, the points buried in the cushion.
Tail.—Short and small, almost covered by the cushion.
Tail Coverts.—Very abundant and soft.
Thighs.—Short, strong, set wide apart, and abundantly covered with soft feathers.
Hocks.—Well covered with soft feathers curling round the joints. Stiff feathers called "vulture hocks" objectionable, but not a disqualification.
Fluff.—Very abundant and soft, and standing out well from the body and thighs.
Legs and Leg Feather.—Short, thick, and heavily feathered on the outside. The feathers should stand out well from the leg.
Toes.—Strong and straight; the middle and outer toe heavily feathered to the end.
General Shape and Carriage.—Broad, deep, massive, and well rounded; the head carried rather forward; the forepart of body slightly drooping; the cushion carried rather high.

POINTS OF COLOUR IN BUFF COCHINS.—COCK.

Comb, Face, and Wattles.—Bright red.
Deaf Ear.—Bright red, free from any tinge of white.
Beak.—Deep yellow.
Head.—Rich buff.
Eye.—Orange or pearl, the former preferred.
Hackle.—Rich golden buff, uniform in colour, and sound to the root of the feathers.
Back.—Same colour as hackle.
Wings.—Ditto, the flights buff and free from splashes of black or white.
Saddle.—Same colour as hackle.
Breast, Thighs, and Fluff.—Clear buff, perfectly even and free from all shading.
Tail.—Rich chestnut, shading to bronze, perfectly free from white, and with as little black as possible.
Legs.—Bright yellow, the feathers matching thighs and fluff.

HEN.

Comb, Face, and Wattles.—Bright red.
Deaf Ear.—Bright red, free from any shade of white.
Beak.—Yellow.
Eye.—Orange or pearl, the former preferred.
Plumage.—Clear rich buff throughout, perfectly free from all mottling, and hackle from any ticking.
Legs.—Bright yellow.

POINTS OF COLOUR IN LEMON COCHINS.—COCK.

Comb, Face, and Wattles.—Bright red.
Deaf Ear.—Bright red, free from any tinge of white.
Beak.—Yellow.
Head.—Bright lemon buff.
Eye.—Orange or pearl, the former preferred.
Hackle.—Bright lemon buff, even in colour, and sound to the root of the feathers.
Back.—Same as hackle.
Wings.—Ditto, the flight feathers buff, and as free as possible from any splashes of black or white.
Saddle.—Same as hackle.
Breast, Thighs, and Fluff.—Clear lemon buff, even in colour, and free from all shading.
Tail.—Rich chestnut buff, free from black or white, especially the latter.
Legs.—Bright yellow, the feathers lemon-buff, matching the body.

HEN.

Comb, Face, and Wattles.—Bright red.
Deaf Ear.—Bright red, free from any white.
Beak.—Yellow.
Eye.—Orange or pearl, the former preferred.
Plumage.—Uniform lemon-buff throughout, and perfectly free from all mottling.
Legs.—Yellow.

POINTS OF COLOUR IN CINNAMON COCHINS.—COCK.

Comb, Face, and Wattles.—Bright red.
Deaf Ear.—Bright red, free from any tinge of white.
Beak.—Yellow.
Head.—Rich cinnamon.
Eye.—Orange or pearl, the former preferred.
Hackle.—Rich cinnamon, perfectly even in colour.

Back.—Rich dark cinnamon.
Wings and Saddle.—Rich deep cinnamon, free from all markings.
Breast, Thighs, and Fluff.—Cinnamon, almost approaching chocolate, perfectly even in colour.
Tail.—Rich bronze.
Legs.—Yellow, feathers same colour as breast.

HEN.

Comb, Face, and Wattles.—Bright red.
Deaf Ear.—Bright red, free from any white tinge.
Eye.—Orange or pearl, the former preferred.
Beak.—Yellow.
Plumage.—Rich even cinnamon throughout, perfectly free from all markings.
Legs.—Yellow.

POINTS OF COLOUR IN PARTRIDGE COCHINS.—COCK.

Comb, Face, Deaf Ear, and Wattles.—Bright red.
Beak.—Yellow shading to horn colour.
Head.—Dark red or orange.
Eye.—Orange or pearl, the former preferred.
Hackle.—Orange or golden red, each feather having a glossy black stripe down the centre.
Back and Shoulder Coverts and Wing Bow.—Rich dark red. *Greater and Lesser Coverts*.—Metallic black. *Primary Quills*.—Bay on the outer web, black on the inner. *Secondary Quills*.—Bay on the outer web, metallic black on the inner.
Saddle.—From a bright golden colour to a rich orange red, each feather having a metallic black stripe down the centre.
Breast.—Rich black.
Underpart of Body and Thighs.—Black.
Tail.—Glossy metallic black.
Legs.—Yellow, feathers black.

HEN.

Comb, Face, Deaf Ear, and Wattles.—Bright red.
Beak.—Yellow shading to horn colour.
Head.—Light brown or yellow, finely pencilled.
Eye.—Orange or pearl, the former preferred.
Neck.—Golden yellow, each feather striped with greenish black down the middle.
Remainder of Plumage.—Light brown, every feather to be distinctly pencilled with a darker shade and uniform over the whole body, a light shaft objectionable.
Legs.—Dusky yellow.

POINTS OF COLOUR IN WHITE COCHINS.—COCK AND HEN.

Comb, Face, and Wattles.—Brilliant red.
Deaf Ear.—Brilliant red, free from any tinge of white.
Eye.—Orange or pearl, the former preferred.
Plumage.—Pure snowy white, glossy and free from all creamy or yellow tinge.
Legs.—Bright yellow, pale legs in old birds a fault, but not a disqualification.

POINTS OF COLOUR IN BLACK COCHINS.—COCK AND HEN.

Comb, Face, Deaf Ear, and Wattles.—Brilliant red.
Eye.—Red or black.
Plumage.—Rich glossy raven black, perfectly free from feathers of any other colour and sound to the roots, the more metallic sheen the better.
Legs.—Dusky yellow preferred, dusky legs without the yellow not a disqualification.

POINTS OF COLOUR IN CUCKOO OR CREOLE COCHINS.—COCK.

Comb, Face, Deaf Ear, and Wattles.—Red.
Beak.—Yellow, sometimes black markings.
Eye.—Red.
Plumage.—The ground colour nearly white, each feather barred across with dark blue grey.
Legs.—Pale yellow.

POINTS OF COLOUR IN CUCKOO COCHINS.—HEN.

Comb, Face, Deaf Ear, and Wattles.—Red.
Beak.—Yellow.
Eye.—Red.
Plumage.—The ground colour nearly white, each feather barred across with dark blue grey.
Legs.—Pale yellow.

BUFF, LEMON, OR CINNAMON COCHINS.

NUMERICAL VALUE OF POINTS.—COCK OR HEN.

Points to be deducted for defects.

Defective colour	25
Want of size	15
Bad head and comb	10
Slip wings	5
Want of fluff	5
Want of cushion	5
Length of leg, and want of leg-feathering	10

Want of general shape	10
Want of condition	15
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Twisted or falling comb; plumage any other colour than shade of buff, lemon, or cinnamon respectively; legs any other colour than yellow; general want of Cochin points; crooked back, legs, or other deformity; total absence of feather.

PARTRIDGE COCHIN.

NUMERICAL VALUE OF POINTS.—COCK OR HEN.

Points to be deducted for defects.	
Defective colour	20
Want of size	15
Bad head and comb	10
Slip wings	5
Want of fluff	5
Want of cushion	5
Length of legs and want of leg-feathering	20
Want of general shape	10
Want of condition	10
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Twisted or falling comb; general want of Cochin points; any deformity; total absence of feather.

WHITE COCHINS.

NUMERICAL VALUE OF POINTS.—COCK OR HEN.

Points to be deducted for defects.	
Defective colour	25
Want of size	15
Bad head and comb	10
Slip wings	5
Want of fluff	5
Want of cushion	5
Length of legs and want of leg-feathering	10
Want of general shape	10
Want of condition	15
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Twisted or falling comb; plumage any other colour than pure white; legs any other colour than yellow; general want of Cochin points; any deformity; total absence of feather.

BLACK COCHINS.

NUMERICAL VALUE OF POINTS.—COCK OR HEN.

Points to be deducted for defects.	
Defective colour	20
Want of size	15
Bad head and comb	10
Slip wings	5
Want of fluff	5
Want of cushion	5
Length of legs and want of leg-feathering	10
Want of general shape	15
Want of condition	15
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Twisted or falling comb; any mixture of red or white feathers; general want of Cochin points; crooked back or other deformity; total absence of feather.

CUCKOO COCHINS.

NUMERICAL VALUE OF POINTS.—COCK OR HEN.

Points to be deducted for defects.	
Bad colour	25
Bad shaped comb	10
Want of hackle	8
Length of legs and want of leg-feathering	10
Want of size	15
Want of condition	12
Want of symmetry	20
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Numerous black, white, or red feathers; total absence of leg-feather; general want of Cochin points.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Charing Cross Hotel on Wednesday, October 25th, at 2 P.M. There

were present—Messrs. T. W. Anns (in the chair), G. B. C. Breeze, A. Comyns, and C. F. Montresor.

ANNUAL REPORT.—The Annual Report to be presented at the General Meeting at the Crystal Palace was read by the Secretary and approved.

STANDARD OF EXCELLENCE.—Some details connected with the draft Standard of Excellence now in preparation were under consideration.

NEXT MEETING.—The next meeting was fixed to be held at the Charing Cross Hotel on Monday, November 13th, at 4.30 P.M.—ALEX. COMYNS, Hon. Sec., 47, Chancery Lane, W.C. October 30th, 1882.

OUR LETTER BOX.

Testing Milk (Comber).—If you place the milk-tester bulb downwards in a vessel of milk, the depth to which it will sink will depend on the density of the milk, and its richness or otherwise will be indicated by the figures on the scale. You will easily understand its action if you first try the tester in pure milk, then in milk and water, and by similarly testing the products of different cows you will find which animal yields the richest milk.

Poultry Farming (E. B., Dublin).—The St. Leonards Poultry Farm, Ringwood, Hants, would probably be best. Unless you have had practical experience we would strongly urge you not to attempt the business, and even then only in a small way to begin with.

Feeding Cows in Winter (J. E.).—In keeping cows in the winter months on purchased food for the production of the richest milk and butter, we recommend that each cow should be allowed 56 lbs. to 64 lbs. of Mangolds daily, according to the size of the animal, 3 lbs. of Wheat crushed, and 3 lbs. of decorticated cotton cake, the usual quantity of good pasture hay and sweet oat straw cut into chaff per day. We do not approve of cooking food for ruminating animals; we prefer that the best yellow Mangold should be pulped, and the crushed Wheat and cotton cake, together with the straw and hay, be mixed together in the shape of pudding, this to be divided into three feeds per day. Wheat at 5s. per bushel, according to the weight and quality for butter-making purposes, is the cheapest food now to be purchased in comparison with other grain. Crushing also is better than meal, because of less waste. Mangold is the cheapest root adapted for milch cows, but Potatoes are the best root food if they can be bought cheap enough.

Cow-keeping and Mangers for Stables (A. L. L. W. and J. O.).—Your letter arriving as our pages were being prepared for press cannot be satisfactorily answered this week, and replies to them will be published in our next issue.

Turtle Doves (J. H.).—Turtle Doves in this country are birds of passage, coming in spring about the beginning of May, breeding here, and leaving again early in autumn. They are about the size of a Missel Thrush, measuring about 10 or 11 inches in length, and about 18 inches in breadth from tip to tip of the expanded wings. The Turtle Dove is exceedingly shy and wary in its wild state; they frequent the deep woods and thickets, preferring a Pine or Fir tree to build on. The nest is formed of twigs, and lined with finer twigs or roots, and but slightly depressed in the centre. It is often placed on a flat Fir bough covered by another. They lay two small white eggs, and sit about a fortnight; they feed on small grain and seeds. Although so shy in a state of nature, yet if the young are taken from the nest and reared by hand or mouth they become very tame, and will occasionally breed in confinement, and may be permitted to enjoy their liberty in summer; but care must be taken to confine them at the migratory season, or they will decamp without hope of returning the next spring. They breed freely with the Collared Turtle or common cage Dove. Dr. Bechstein remarks that the hybrid progenies are prolific, and the produce becomes larger each cross. Their coo is peculiar, and differs from either of the parents.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. October.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	22	29.247	50.9	49.3	W.	51.9	56.2	47.6	97.7	49.4	0.043
Mon.	23	29.529	45.3	43.0	N.W.	50.6	58.0	39.2	95.9	33.6	0.475
Tues.	24	29.079	47.3	47.0	S.E.	47.8	56.8	40.7	87.2	36.0	0.184
Wed.	25	29.570	40.7	47.0	N.W.	47.7	51.6	35.7	70.7	30.3	0.046
Thurs.	26	29.583	35.1	35.1	N.E.	46.4	50.9	31.9	79.4	27.3	0.189
Friday	27	29.436	46.2	45.3	N.E.	45.9	52.2	34.5	59.3	31.3	0.589
Satnr.	28	29.452	48.0	47.9	N.E.	46.9	49.3	45.3	51.0	45.6	0.388
		29.414	44.8	44.0		48.2	53.3	39.3	77.3	26.2	1.864

REMARKS.

22nd.—Dull and damp early; showery morning; fine bright afternoon; moonlight night.
23rd.—Fine bright morning; heavy squall of rain and wind at 2.40 P.M.; fine evening.
24th.—Very wet and wild early, with rapid fall of barometer and heavy gale, especially about noon; fine moonlight night.
25th.—Fair but hazy morning; showery afternoon; fine evening.
26th.—Foggy morning; afterwards fine and bright till 6 P.M.; heavy rain during evening.
27th.—Damp and rainy all day.
28th.—Wet all day; high gusty wind after 1 P.M.

Another very wet week, the rain having fallen every day for a fortnight, and to the aggregate depth of very nearly 4 inches. The temperature is near, but rather below, the average.—G. J. SYMONS.



9th	TH	Brixton Chrysanthemum Show (two days).
10th	F	
11th	S	
12th	SUN	23RD SUNDAY AFTER TRINITY.
13th	M	Stoke Newington (two days) and Lambeth (three days) Chrysanthemum Shows.
14th	TU	Royal Horticultural Society (Fruit and Floral Committees at 11 A.M.). Southampton (two days), Tooting, Putney, Twickenham, Walton, and Plymouth Shows.
15th	W	Bristol (two days) and Westminster Aquarium (two days) Shows.

THE CUCUMBER DISEASE.

BELIEVE there are at least two distinct forms of Cucumber disease, but I have only made the acquaintance of one, and I can assure your readers that this is quite sufficient. Where a daily supply of fruits has to be maintained throughout the year with limited convenience the task is not always an easy one, as accidents will sometimes happen. But, accidents and diseases excepted, it is quite possible to have an unbroken supply of Cucumbers for many years; and if my memory serves me right I had such an one for at least half a dozen years, then came a change. The nature of the disease which has been so troublesome I have not been able to ascertain satisfactorily, but I have discovered how it came and how it may be extirpated.

I had hitherto grown but one variety and saved the seed. This variety may not be the handsomest, and certainly the fruit from that is not the largest with which I am acquainted, but it bears freely in winter and the flavour is good. However, it was not good enough for an assistant who had charge of the Cucumber house, and a reputed better variety was introduced without my knowledge, "just one plant" among the rest to see the difference. Well, the difference was remarkable, for the new comer had no sooner commenced showing fruit than each of the said fruit, amongst other vagaries, attempted to describe a semi-circle, and, as I had not been accustomed to see my Cucumbers behave in this way before, the matter was inquired into and the truth revealed. It was just one of those cases in which gardeners may fervently pray to be "saved from their friends," especially such amongst the latter as would do them "good by stealth." It is unnecessary to say that the semicircular-fruited variety was quickly despatched, and I was in hopes I had finished growing Cucumbers of that shape. But "the evil men do lives after them," and so did that of my friend's Cucumber, for the whole stock somehow caught the bad habit, and semicircular Cucumbers were the rule. It was not, however, the shape only which was disappointing—that could be altered before they were sent to table—but there was a gummy substance exuded from the fruits, many of them were quite bitter, and there was a difficulty in growing a sufficient quantity, as only a few of the fruits would swell at all.

Various plans were tried to remedy the evil. Fresh seed was obtained from a source where the disease was unknown. It was raised in houses or frames some distance away from the

old plants, and fresh vigorous young plants were placed in dung beds or clean houses as the case might be, but with no better result. The disease seemed to be in the air, and do what we would it appeared as if we could not escape it.

But we will try again. It may be that the germs of the disease are capable of being carried by the attendants, or the implements which are used, and this theory at present has all the appearance of being the correct one.

Plants were raised and grown in an old house quite away from those in which the disease was rife; the attendant had his separate waterpots, &c.; he procured water from a different source, and had nothing to do with the houses where the diseased plants were. The latter were kept no longer than when the new plants commenced fruiting, and then, of course, they were carefully destroyed. Many readers will say, Why were they not destroyed at once? But gardeners who have to maintain a perpetual supply of everything will not ask that question. The first isolated stock of plants did very well, and we started another lot for the summer on a dung bed. This was also kept isolated from the Cucumber house proper with the same result. The house in which the diseased plants had been growing was fumigated with sulphur, every part that could be reached was scalded with boiling water, the walls were limewashed, the woodwork painted, and the house remained clear of Cucumbers for four or five months, during which time no disease was seen on the place. Now, I am happy to say, we have plants in the same house in full bearing in the most perfect condition—a sight such as has not gratified my eyes for several years.

It is plain, then, that nothing short of complete isolation and seed fresh from a healthy source will suffice. We had tried everything except isolating the attendant and his implements before and failed.—W. TAYLOR.

CEANOTHUSES FOR BEDDING.

CEANOTHUSES are generally regarded as wall-covering plants, and for this purpose most, if not all of them, are admirably adapted; but it may not be known to all men that some of the varieties at least are equally well suited for growing in the form of bushes in borders, or for filling large flower beds effectively. But such is undoubtedly the case, and thus grown they are at least as effective as when trained to walls, and, what is more, form masses of chaste blue flowers in the autumn, such as can be equalled by few, if any, other plants, hardy or tender, that are employed in gardens.

There is great diversity in the habits of the species and varieties of Ceanothuses, just as there is in the characters of Fuchsias. Some Fuchsias, as all know, are suitable for training up pillars, while others of more sturdy growth are equally well adapted for planting in borders and beds. For the latter purpose no one would think of growing such varieties as Lustre, Arabella, Champion of the World, and others of that type, but they would select such sturdy growers and free-bloomers as Rose of Castile, Erecta Von Novelty, and Lady Heytesbury, standards or bushes of which produce a charming effect when planted out in flower gardens in summer. It is precisely the same with Ceanothuses. For bedding such species as *C. azureus*, *C. divaricatus*, and *C. rigidus* must not be chosen, but a few others that will be named of sturdier growth, and which afford large lavender, pink, and white racemes in profusion. They require, too, precisely the same treatment as Fuchsias,

and this is easy enough, neither great cultural skill being needed, nor valuable space under glass occupied in wintering the plants. When old Fuchsias are planted out they simply need potting in the autumn, keeping moderately dry so that they will shed their leaves, then placing under the stage of a cool house or even in a shed where they will be safe from frost. In the spring they need pruning, just starting into growth gently, then planting out again at the beginning of summer, and they grow and flower until the approach of winter. Such is the simple routine of managing these popular plants for outdoor decoration, and it may be said that they grow far more healthily and flower more profusely than when allowed to be dried, parched, drawn, and insect-eaten under glass, which is the fate of thousands of plants every year.

Now Ceanothuses for beds require the precise treatment as above summarised for Fuchsias, and therefore their preservation and culture are within the means of the majority whose duty or pleasure it is to render flower gardens and pleasure grounds attractive during the summer and autumn months.

It was on the Continent where I first saw Ceanothuses grown as bushes both in pots and planted out, and their floriferous character rendered them far more effective than Veronicas. But it may be reasonably urged that, although they may succeed well there, it does not follow that they will be amenable to the same treatment in this country, and give equally satisfactory results. But experience has proved that they grow and flower quite as well in English as in Belgian and French gardens; at least I have never seen finer examples than those which many others have also seen this year growing in one of the large beds at Chiswick, and it follows that if they grow so well there and flower so profusely, that they will succeed just as well under the same treatment in a thousand other British gardens. A large bed of these plants, perhaps 15 feet long and 7 or 8 wide, was certainly the most distinct and attractive of all the beds in the garden during September and October. It was quite a mass—not a formal heavy mass of pale blue, but an elegant waving group of thousands of fine racemes.

In some of the London parks attempts are made every year to grow in bush form the good old greenhouse wall and pillar plant *Plumbago capensis*; but although it is amenable to this method of culture, as a rule the results are far from being satisfactory. If the same space were devoted to Ceanothuses treated as above indicated a far better display would be produced, and a distinct effect imparted to the groups of ornamental plants that are there so admirably represented.

While there are several varieties of Ceanothuses suitable for growing as bushes either in pots or planted out, many of them closely resemble each other, and therefore only four of the very best and most distinct that have come under my notice shall be named, as these will be quite sufficient to start with by those who may desire to try this method of culture. They are *Gloire de Versailles* for the centres of large beds, also equally suitable for low walls, for which purpose it is the finest variety; *Gloire de Vaite*, dwarfier, very free and fine. Both these are blue. The best pink variety is *Marie Simon*, and the best white is *nivens*. I have seen these flowering freely in 5-inch pots.

Ceanothuses may be rapidly increased from cuttings, as the young shoots, not too soft, strike as freely as *Heliotropes* or *Verbenas*, and under the same treatment. It would be well to grow the plants in pots the first season in a light house at first, then in a cool frame, then plunging them in ashes in a sunny position out of doors; in fact, giving them the same general treatment as *Chrysanthemums*. They would thus ripen their growths, and afterwards the simple routine above sketched for Fuchsias would suffice for all further requirements.

Such plants as those blue varieties that have been flowering so profusely in the Royal Horticultural Society's garden would be most valuable for conservatory decoration in late autumn and early winter, and would contrast effectively both in habit and colour with *Chrysanthemums*.—J. W.

ANTS EATING GRAPES.—We have millions of small ants, which feed upon the late Grapes or any other ripe fruit. Can any of your readers state how to extirpate them? I have put treacle in jam pots and caught several, but there are so many that it seems like trying to

empty the Thames to get rid of them in that way. Is there any poison that would attract them that I could mix with treacle? Where I can apply it I have found paraffin and soapsuds effectual—in fact, it is a long time before they will attempt to go where paraffin has been applied; unfortunately that cannot be used in many places. —J. H. W.

APPLES, PEARS, AND STRAWBERRIES FOR THE NORTH.

PERHAPS it may be assumed that what is suitable for these northern parts will suit anywhere. I have long contended that the succeeding year is more depending on its predecessor for success than it is on either wind, rain, frost, or sunshine, and this year's experience has more than ever convinced me that the opinion I have formed thereon is correct. With suitable weather this year, and bearing trees not exhausted by overcropping, with wood ripened and fruit buds fully developed, it will be seen that troubles next year will be met with a robustness that will overcome the little difficulties that may occur. To be the more impressed with the necessity of a sufficiency of sun heat this year to secure success next, it may be well to remember that the fruits we love to cultivate most are imported from sunnier climes; or even if natives, by crossing may have been robbed of the hardy nature possessed when growing in natural wildness, and have so become unfitted for our climate.

What I have hitherto wished to impress is the necessity of observing the various traits of character of the many varieties of our several fruits, that disappointments and losses might be less frequent and success more certain. Often I have grieved over the many evidences to be met with of gardeners neglecting to think sufficiently. I know of no calling where exists such scope for thought as in connection with the everyday experience of gardeners. Every plant has its own peculiar characteristics, and it is the work of gardeners to grapple with these characteristics and to understand them. Pray allow me to be plain; and if recently I have been more a reader than a contributor to your columns my silence has not been through a lack of contributions that tempted criticism. One gardener partly fails in growing Vines satisfactorily; a neighbour publishes that the water applied ought to have been increased by "fifty times." This is what I term having "water on the brain," when thought would have convinced that enough was sufficient, and all beside waste. But it was about hardy fruits I meant to write, though of Vines I will here take the opportunity of saying that to feed them sufficiently is wisdom, whilst to gorge them to an extent that necessitates their borders being washed is folly.

APPLES.—Had we had sufficient sun heat last year to perfect the wood and fruit buds of our outdoor trees, I believe that this year there has been nothing to contend with that would have resulted in the general barrenness experienced. We had no spring frosts of importance, neither the gales nor hailstorms that was experienced in the south of England. Standing side by side we had trees equally laden with blossom, whilst the one variety has carried crops that bent the branches to the ground, and others have not had a solitary fruit; and the reason I say has not been that one variety resisted frost better than the other, but simply that the one variety required less heat last year to perfect its fruit buds than did the other. How else are we to account for the barrenness of Court Pendu Plat, which bloomed in June under the most favourable circumstances? And how otherwise are we to account for the very great crop that has been perfected of our old favourites, *Cellini* and *Lord Suffield*, and of the two varieties that are not so generally well known, the *Ringer* and *Golden Spire*? To growers in the north of England and Scotland I say, Plant largely of these four, and the result will be with such seasons as has been those of recent years an abundant crop of first-class kitchen Apples.

PEARS.—Regarding Pears, of blossom here I had also an abundance, but on only two varieties have I had any Pears. I have before written of *Marie Louise d'Uccle*, and now, as a hardy companion, I have the pleasure of adding *Mr. Rivers' Fertility*. But they, too, have singularly demonstrated not only their natural hardiness, but the frost that last year materially affected them in this. I have had a crop of Pears without a pip in the whole lot; and this deformity I maintain has in no way been contributed to by the present season, but is the result alone of last year's sunless season. The freak I take as simply evidence of the extreme hardiness of these two varieties; we have them with fruit buds only half matured setting a crop.

STRAWBERRIES.—Of Strawberries I wish to speak of *Roden's Duke of Edinburgh*. Some time ago I alluded to a variety that was uninjured by wet—this is the variety. Here it is light in

colour but of delicious flavour, and is always asked for by those who have previously had it. It ought to be grown by every gardener, and then, no matter how wet the period during the Strawberry season, a dish of delicious Strawberries could be had. Next year I intend it to form my main crop; also of advantage, it has a long season, and every blossom appears to produce a perfect fruit. I have also the other Duke of Edinburgh, but it does not appear to thrive on my rich loamy land.—JOSEPH WITHERSPOON, *Red Rose Vineries, Chester-le-Street.*

HYACINTHS AND TULIPS.

AMONGST all the beautiful plants in our gardens which flower in early spring few surpass Hyacinths and Tulips for great and pleasing effect. These flower in April and May—a season when flower gardens generally are comparatively dull. Flowers out of doors in spring are always welcomed. For many years I planted annually about £80 worth of Hyacinths and Tulips (reckoned at wholesale prices) in flower gardens, and it was my happiness to know that in spring they gave great pleasure and satisfaction to my employers. Families that go to London or leave their country seats during the spring months will not care for a display of flowers then in their gardens, but to those who remain at home I strongly recommend planting bulbs now for a spring display. October or early in November is the best time for planting Hyacinths, Tulips, and Crocuses—as soon as the bedding plants are removed. Early planting is doubtless advantageous, as the bulbs obtain a better hold of the ground, and thus gain strength to produce stronger flower stems. If planted late in November they do not root so well. The soil is too cold, and the time for rooting too short before the winter frosts arrive. Late planting is altogether disadvantageous, for the bulbs so planted flower at the same time as those planted earlier.

In buying Hyacinths for outdoors, only those with single flowers should be selected. Indeed, I prefer the single varieties for culture in pots also, as they produce far better bells and more massive and effective spikes. In arranging the colours of Hyacinths in planting I employed the three colours red, blue, and white in equal proportions—that is to say, thirty-three of each colour in a bed of one hundred bulbs, mixing them in planting, and not keeping the colours in separate rows. Massing the three colours separately is not so pleasing. In planting Hyacinths in shrubbery borders it is better to plant three in a group than singly. As the heads of single flowers are heavy they should be secured to neat stakes before the flowers expand. Even in a conservatory I prefer three bulbs in a pot. For outdoor display the mixed reds, mixed blues, and mixed whites are used, being much cheaper than named varieties. After they have done good service in the flower garden the bulbs should be carefully taken up and preserved for forcing for cut flowers in their second year. The second year's flowers from good Dutch Hyacinths are quite large enough for cutting, and at market prices are worth nearly their original cost.

Tulips are planted about 8 inches asunder in beds, and about 3 inches below the surface. If the most effective sorts are used, and the colours are well balanced in planting, no other known flowers can produce a more striking effect in a flower garden than a bed of single Tulips during the month of May. I have found that the most brilliant effect was produced by three colours only—scarlet, yellow, and white, mixed in the proportion of three scarlet, two yellow, and one white. The best scarlets for effect are Vermillion Brilliant and Samson; for yellows I like Canary Bird and Yellow Prince—both are excellent and cheap. For white there is none better than White Pottebakker—a rather high-priced Tulip, but pure white. Double varieties are objectionable for outdoor work, owing to the weight of the flowers and length of flower stems. In mixed borders Tulips should be planted in patches of a dozen bulbs rather than singly. To all who want to have charming beds in spring I commend a trial of such Tulips as those named above, and planted as I have indicated. Bulbs may be forced a second year for cut flowers at Christmas.

Crocuses are so cheap, early, and pleasing that they should be largely used in gardens. In small gardens they should be planted in large patches, and in gardens with large shrubberies sheets of Crocuses about the grounds are very pretty. Crocuses once planted will last for many years.—A. PETTIGREW.

POTTS' SEEDLING APPLE.

ACCORDING to Mr. Petch, the experienced representative of Messrs. Richard Smith & Co. of Worcester, this Lancashire Apple possesses a property that entitles it to the consideration of those who have gardens in smoky districts. "There is no Apple in existence," Mr. Petch says, "that will grow so well in and

near large towns as Potts' Seedling, and it should be recommended particularly for that purpose." As confirmatory of the accuracy of this estimate we recently saw fine crops of splendid fruit in Mr. Firth's garden at Riverdale, Sheffield. Mr. Abbott, the gardener there, regards it as the most useful Apple in the collection, and wishes that half of the entire number of trees were of this variety. Many of the Sheffield-grown fruits were much larger than that represented, which is submitted as a fair average specimen.

The fruit of this Apple emits a powerful scent of ether or chloroform. It is very irregular in outline, roundish and flattened, very angular on the sides and at the base, also puckered and ribbed round the eye. Skin smooth, shining, and unctuous when ripe, of a uniform greenish straw colour, and sprinkled with russet dots. Eye large and closed, set in an angular and ribbed basin; tube wide, conical; stamens marginal. Stalk half an inch long, stout, inserted the whole of its length in a deep cavity. Flesh very tender and pleasantly subacid, with all the character of the flesh of Codlins. Cells of the core open; cell-walls elliptic, obovate, with toothed fungoid veins. An early Apple, ripe during September, of the Lord Suffield and Domino class, but heavier and keeps longer, often remaining firm until November. The tree is a good grower, with large roundish leaves like the Hawthornden, and bears freely.

Mr. Nelson of Catcliffe, near Rotherham, found this Apple

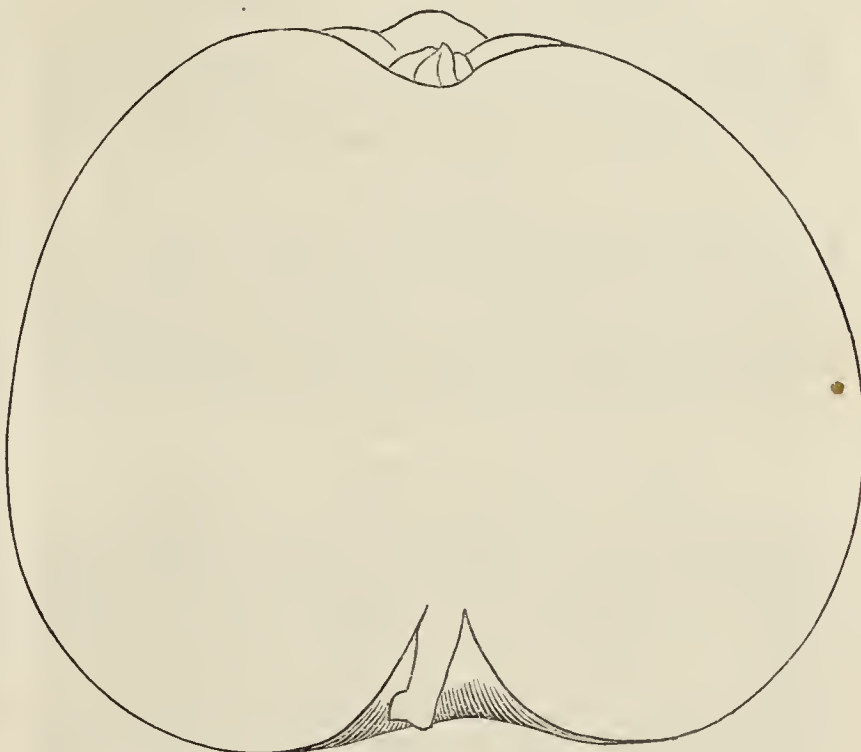


Fig. 71.—Potts' Seedling.

about thirty years ago in the garden of a Gooseberry grower at Oldham, who, he stated, had procured his trees from a Mr. Potts, who had raised it. Mr. Nelson's letter appears on page 322 of our issue of the 5th ult., and he speaks in high terms of the Apple in question.

USEFUL HINTS.

PELARGONIUMS.

To have short and sturdy Pelargoniums of the show and decorative types next season they should now be placed on a shelf close to the glass in a cool and well-ventilated house, and have moderate supplies of water. If the Pelargoniums have been well ripened under this treatment the growths they make will be very healthy and sturdy. If they are growing through the winter the shoots will be weak and watery. Subsequently the plants will be very drawn by the time their flowering period arrives, and the blooms will be poor.

TUBEROUS BEGONIAS FOR BEDDING.

The past season has again shown how well adapted the Tuberous Begonia is for bedding. I think a few beds should be in every garden, if only for a late display, when Pelargoniums are past their best. The plants should now be lifted and placed in a dry shed until the tops decay, after which they should be packed closely together in boxes and placed in a cool and dry place safe from frost. I find the best tubers to plant are those that are not distinct enough to name and too good to discard, of which some

nurserymen have some thousands every year from seed. I should like to know the best edging plant for a Begonia bed. I find none so well suited for that purpose as *Polemonium eceruleum variegatum*.

CULTURE OF FICUS ELASTICA.

Of all plants that are useful for growing in rooms *Ficus elastica* is doubtlessly the best. The finest specimen I have seen had been grown in a house for several years. It was 8 feet high, with broad healthy foliage down to the rim of the pot. It had a good position in a bay window, and in such a position this *Ficus* looks very well. It is also well adapted for subtropical bedding. The best time to propagate it is the beginning of the year. If old plants have to be propagated from, cut off the leading growths about 6 inches long and insert them singly in small 60-pots, plunging them in a propagating frame in a bottom heat of 90°, where they will soon strike. If many are required take all the eyes with a leaf attached, and if each is secured to a small stick they may be readily placed firmly in their pots. After they have rooted they must still be kept in the same bottom heat to start them. After they have started well pot them firmly in 48's, in a compost of two parts loam and one of peat. Give them stove treatment the following summer and winter, when they may be hardened off, and kept in a greenhouse for use as required.—A. YOUNG.

AUTUMN-PLANTED CABBAGES.

YOUNG plants which were inserted in their permanent quarters early in September now have a firm hold of the soil and will be growing freely. It will be a great gain in spring if they can be carried through without receiving any check. Severe weather may come and stop their growth, but this will not injure them so much as being disturbed at the roots, which often happens if care is not taken to earth up the young plants in good time. It is an excellent plan to have plants in drills 3 inches deep, as the soil can be levelled in from each side to the stems of the plants. This prevents the wind twisting them, breaking the roots, and thus retarding the growth considerably. In cold weather the earthing-up acts as a great protection to the young plants. In fact, we have noticed plants which have had no such aid completely swept away during a strong gale, or seriously crippled in severe weather, while those protected appeared little the worse.—J. M.

PLANTING ROSES—SPRING v. AUTUMN.

I SEE that our friend "D., Deal," has raised a point in Rose culture of some interest—viz., as to whether it is better to plant Roses in the autumn or to defer doing so until February, and appeals to me to supply a few particulars as to the temperature of the soil at moderate depths during the late autumn, winter, and early spring months. This I have much pleasure in doing; but since my own observations extend only over a few years it will be perhaps better to quote instead some of the mean values for six years given by Mr. G. J. Symons, F.R.S., in a paper read before the Royal Botanic Society in 1877:—

MEAN TEMPERATURE OF THE SOIL AT 9 A.M.

	At 1 foot.	At 2 feet.	At 4 feet.
	deg.	deg.	deg.
October.....	50.1	51.6	54.0
November	42.6	44.9	48.3
December	38.9	40.7	44.0
January	38.2	39.8	42.3
February	38.1	39.5	41.6
March	40.8	41.5	42.6

Comparing the temperatures at 1 foot in the above table with the mean for the whole year (49.2°) I find the soil in October to be 0.9° warmer, and in the remaining five months respectively 6.6°, 10.3°, 11.0°, 11.1°, and 8.4° colder than this annual average. It will thus be seen that the ground is, as a rule, not only very much warmer in November than in February, but also a good deal warmer than even in March, while at the greater depths of 2 and 4 feet these differences are of course still more marked. It will also be noticed that the most sudden fall in temperature is that which usually occurs between October and November. So that, given seasonable weather and taking the temperature of the soil alone as our guide, November would appear to be the most generally favourable month both for the removal and planting of Roses.

In practice, however, I believe it will be found that the condition of the soil is a matter of far greater importance than its temperature. It is, therefore, my decided opinion that in a season like the present it would be advisable to defer the planting of any Roses received from the nurseries until the ground is in some-

thing like really good working order. The careless and ill-timed planting of Roses is, I believe, the cause of more failures than any other that could be named.—E. M., Croydon.

"How would it answer to get Roses from the nurserymen as usual in the autumn and lay them in until February?" To this question, asked by "D., Deal," on page 402, I for one can say the plan will answer well. It is certainly the safest method to adopt in districts where the winters are usually severe, because, as your correspondent observes, it is "far easier to cover the Roses and protect them from frost" than if they were planted in the beds.

I found the advantages of the plan indicated by accident, and subsequently adopted it as a system. Some fifteen or sixteen years ago a number of purchased Roses arrived late in November, and their planting was commenced forthwith; but, fortunately as it proved, frost and snow came suddenly before half of them had been inserted, and the remainder—the bulk—were laid in by the heels near the ridges of late Celery, a row of Roses being placed along each ridge, not bundled together anyhow, and there they remained till the end of February. They were examined occasionally, and just when the roots were covered as with white specks, the first evidence of the production of new fibres, the plants were taken up carefully during a dull moist day and planted quickly in the beds, the roots not being permitted to become, even to the slightest extent, dry during the process of removal. The result was this: Every Rose so treated grew as well as it was possible for Roses to do, while every one planted in autumn was killed by the frost. Those near the Celery ridges were protected with the same litter that preserved the Celery, and thus no additional labour was involved in this respect.

This method of protecting Roses in winter and planting in spring has ever since been followed with the same good results; and I can only conceive it possible for failure to occur by permitting young roots to form and become dry when taken from their winter quarters and placed in the beds, and then the system would not be at fault, but the operator.

I have not read what others have written on this subject, but simply record my own experience. So convinced am I of the safety of the practice, that if I had a thousand Roses to plant for next season I should order them at once, this being important, and treat every one of them as above described.

The plants thus laid-in in November have never commenced rooting until spring. I have examined others at different times for determining this point, nor would they have rooted sooner if planted in the beds in autumn.

I am convinced than the method described, carefully carried out, is the safest and best for northern districts, and "D., Deal," might test the system in the south this season and let us know the results next year.—A NORTH COUNTRYMAN.

[We have received other letters on this subject, which will be published next week.]

NOTES ON PLUMS.

THE Plum is a very useful, and, where grown for profit, a remunerative fruit. It may be cultivated in several ways—either against walls, or in the form of bushes and pyramids, or as standards for orchards. The Plum season may be prolonged considerably by planting suitable varieties. From Early Prolific, Plums may be had after the middle of July; and with Coe's Golden Drop and Ickworth Imperatrice, if the fruit are allowed to stay on the tree until they shrivel, then wrapped in soft tissue paper and placed in a drawer in a dry room, they may be kept until November. Some people think that about two varieties of Plums are sufficient; but I find that most of the varieties do not bear well every year; sometimes one kind bears extra well, sometimes another. So I find it is best to be prepared with six varieties or more. Standard Plums should be planted in orchards about 16 feet apart. If the trees are to be planted for profit, an orchard that is cultivated is the best, and then the trees may be planted bush shape 6 feet apart, to be thinned out to 12 feet. If the orchard is in grass and on gravel standard trees must be planted.

As to pruning, standard Plums, like Apples, require the branches to be thinned out to prevent them crowding and for keeping the centre open. Pyramids and bushes require to be summer and winter-pruned, shortening the growths in summer and attending to them in winter as you would an Apple tree. Pyramid and bush trees, where planted in kitchen gardens, should be root-pruned or lifted every two years; then the trees do not make so much growth and are more fruitful. Plums may be grown on all aspects or walls, but the south, east, and west are best. If a west or south wall can be provided for them the fruit is more luscious

than any other; but trees against an east wall produce good Plums.

Fan-shape training is the best for walls. Keep the lower branches well down and the centre open until the tree is furnished. Young trees do not require the leading growths pruned back very much; only shorten the strongest growths to balance the tree, and lay in as many laterals as there is room for, pruning the others to form fruit spurs. The following will be found a good selection either for culinary or dessert in succession:—Early Prolific, Oullins Golden Gage, McLaughlin's Gage, Green Gage, Transparent Gage, Jefferson, Victoria, Kirke's, Belle de Septembre, Prince Englebert, Reine Claude de Bavay, Ickworth Impératrice, and Coc's Golden Drop.—A. Y.

THE MANURIAL VALUE OF PHOSPHATE OF MAGNESIA.

ROUGHLY analysing the field trials referred to in my two last letters (pp. 383 and 406), we find that from November, 1881, to October, 1882, the results recorded in the Journal of the Chemical Society stand thus:—

No. of trial.	Superphosphate or soluble acid phosphate.	Precipitated or retrograde phosphate.	Bone dust or coprolites.
1.	best	—	—
2.	—	best	—
3.	equal	equal	—
4.	doubtful	doubtful	—
5.	—	slightly best	—
6.	best	—	—
7.	best	—	—
8.	best	—	—
9.	slightly best	—	—
10.	slightly best	—	—
11.	slightly best	—	—
12.	equal	equal	—
13.	—	—	best
14.	best	—	—
15.	—	—	best
16.	equal	equal	—

Thus—

Dissolved, or perfectly soluble phosphate, gave the best results	5 times out of 16.
" " " " " slightly best	3 " "
" " " " " equal to precipitated or reduced	3 " "
" " " " " doubtful	1 " "
Precipitated or reduced (soluble to the extent, say, of 5.56 grs. per gal. of water)	best results 1 " "
" " " " " slightly best	1 " "
" " " " " equal with soluble phosphate	3 " "
" " " " " doubtful	1 " "
Bone dust, or powdered coprolite.....	best results 2 " "

So far, then, as the weight of the crops is concerned, we can hardly hesitate to place the—

Perfectly soluble phosphate....	in the front rank of activity and efficiency.
The precipitated or retrograde..	" second " " "
Bone dust or coprolite	" third " " "

And these results are in as much accordance as could be expected from comparisons made under differing conditions of soil, crop, and weather, with the conclusions drawn from laboratory experiments and theoretical reasonings; but my chief object is to show the superiority of phosphate of magnesia and ammoniacal phosphate of magnesia to any of these forms of phosphate of lime.

To this point I now turn from the views of Liebig given at page 342 concerning these two magnesian compounds, and from the facts stated in my letter concerning the money value of magnesia as a manure (page 225), it will be seen that theoretical conclusions are absolutely in favour of the fertilising effects of phosphate of magnesia and its combination with ammonia, and the proofs derived from their solubility are most convincing. It is, however, a strange fact, that though Liebig's attention was directed to magnesian phosphates he deals only with the tribasic form, and does not refer to the bibasic salt, though the solubility of the latter is very much greater. Voelcker, again, when testing the solubilities of phosphatic materials, experimented with tribasic phosphate of magnesia (his attention being called to it, as was Liebig's, because it is found in the ashes of plants), but he leaves the far greater solubility of the bibasic salt unconsidered. This could only have arisen, as it appears to me, from the supposed impracticability of procuring the latter substance for commercial application. Voelcker, in common with Liebig, manifestly believes that ammoniacal phosphate of magnesia is practically sufficiently soluble to meet the wants of all cultivated plants. Bousingault, moreover, was much impressed with its manurial qualities, and urged its use. Liebig found that its solubility in weak solutions of ammoniacal salts was between 8 and 10 grains

per gallon (page 342). That of bibasic phosphate of magnesia far exceeds this. It is, in fact, soluble to the extent of 217 grains per gallon at a temperature of 45° Fahr. Now this is a degree of solubility which must practically be equal, so far as respects a manure, to the solubility of soluble acid phosphate; and the absence of acidity in phosphates is a great desideratum in Voelcker's opinion, as well as in that, I believe, of all agricultural chemists, when the manure is applied to land deficient in lime. Neither can there be, I think, any difficulty in selling phosphate of magnesia, as soluble as the bibasic, with a guaranteed percentage, the impracticability of doing which is often advanced as an objection to the more general use by farmers of precipitated phosphates of lime.

Of field trials with the phosphate of magnesia I shall refer to two cases only—first, to the results obtained with this salt at Easter Ardross, the report on which was ably reviewed in the *Journal of Horticulture* (page 110, No. 1766), and secondly to a trial which was made by Dr. Hogg at Stillyans in Sussex, on Potatoes in the year 1877. This has been already referred to by me at page 381 (No. 98). Briefly, Dr. Hogg found that "fimus" manure, which contains phosphoric acid in the form of phosphate of magnesia, produced double the effect he obtained with a heavy dressing of farmyard manure; and Mr. Cameron obtained results which showed that 1 lb. of phosphoric acid, in the combination to which I have here called attention, produced the same effect as 2 lbs. of that substance in soluble acid phosphate of lime. Need I add more to encourage horticulturists to prove or disprove whether similar effects would result from its use in the special soils they may have to deal with? A saving of half the sum now expended on superphosphates would be no trifling consideration.—INQUIRER.

SINGLE DAHLIAS.

HAVING read with pleasure paragraphs in your valuable Journal referring to single Dahlias, I venture to offer as a correspondent another contribution from my experiences in the growth of these beautiful and popular plants.

The reputation of Paragon, coccinea, lutea, Vivid, alba, &c., is already established, and I have grown them to perfection, but the varieties will soon become inexhaustible, as you may imagine from my experience.

A packet of mixed seed was sown in a pan last February. The young plants so obtained grew stronger than cuttings. I planted them in round clumps, and the effect has been very striking and brilliant from the variety of colours, the most beautiful I have named being a pure crimson Regina; yellow veiled with red, Destiny; yellow centre, shaded into scarlet and deep crimson, Gloriana; white, shaded into pink, Cecilia; pure yellow, curious shape, Cross Roads.

The varieties, however, will become endless, and as to the nomenclature of single Dahlias it will be impossible to name them all. One thing is established—the single Dahlia can be grown from seed as an annual. It will commence to bloom in July, and as an autumnal-flowering plant there is no better. There is a profusion of bloom still, and I expect when the seed is harvested to have a still greater variety next year, and hope for a successful result in having already associated alba and Paragon, as suggested by a correspondent.—P. L.

SCRAPS ABOUT FRUIT.

A DOUBLE CROP OF PLUMS.—My attention has been drawn to a remarkable instance of fruitfulness in Plum trees. We have here two trees which have this unfavourable season ripened two crops of fruit. The first crop ripened early in September; the second is now ripe. The trees are apparently about twenty years old, and I am told in all favourable seasons they bear a second crop. The first crop was very like the Victoria; those ripe now are of the same colour and flavour, but differ in shape from that variety. Not having seen or heard of such a thing before I would like to know if it is usual for Plum trees to bear two crops in one season, especially an unfavourable season like the present.—JOHN LINDSAY, *Exton Park, Oakham.*

[Two fruits sent with this communication were crushed into a flattened mass of pulp in transit through the post.]

LARGE PEARS.—I desire to thank your Maidstone correspondent, "F. O. M.," for the weight of Pitmaston Duchess Pear recorded on page 385. I have grown one of the heaviest, if not the heaviest, fruit of that Pear in England; it weighed 1 lb. 14½ ozs. I have one fruit of Beurré Diel weighing 1 lb. 4½ ozs. I have not grown Easter Beurré before this year; a small tree from the

nursery in 11-inch pot produced six Pears weighing 2 lbs. 11 ozs., one of them turning the scale at three-quarters of a pound. These are grown in pots in a cold house—our only way to get good fruit in this locality.—G. HAWKINS, *Exenny Priory, Bridgend*.

THE PARSLEY-LEAVED BRAMBLE.—Your correspondent, "W. K. W.," gives great praise to the Parsley-leaved Bramble on page 391. The roots of ordinary Brambles are very troublesome in gardens, because like the upper canes they run a great way and shoot up here and there. Could your correspondent say if the roots of the "Parsley-leaved" would render it unsuitable for growing in a garden close to other small fruit trees? I should be glad to know also where plants of it can be had.—P. B. J.

[American Raspberries were recently advertised in our columns by Mr. Vans Randell, Preston Brook, Chester.]

SCARCE VARIETIES OF PEARS.—In reply to a communication in the Journal last week from "J. E.," I may state that, so far as I know, there are not many of the Pears mentioned by him that have been tried in this country. I have myself grown a few of them, and the following is my experience. Frederic de Wurtemberg I had from the continent some years ago, and I found it very uncertain in its quality. In some seasons it was as good as an autumn Pear could be, but in others it was very deficient of flavour. As it ripened at a time when we have so many better and more certain kinds I discarded it. Soldat Laboureur I have always found to be the same as Beurré d'Aremberg; but I know that Soldat Esperen is sometimes called by that name. Beurré Dubrusson is probably intended for Beurré Dubuisson, a Belgian variety of which I have not yet seen the fruit. Bezi de St. Waast, I see by the "Fruit Manual," is a synonym of Bezi Vaet, an old and excellent late Pear. Perhaps some of your correspondents will be able to give us information about the other sorts mentioned in "J. E.'s" list.—A PEAR FANCIER.

THE DOMINO APPLE.—Having heard this Apple highly spoken of as one of the best and most productive of culinary Apples, I should be glad if you or any of your readers can give me any information about it. Is it as early as Lord Suffield, as productive and as hardy? The Apple just named is our first, but I can hardly add best, as it "falls to nothing," our cook says. That, however, is an exaggeration; but it certainly does seem to melt away to a great extent in cooking. It also "falls" in another respect—namely, its liability to be blown off the trees by a storm in August. Can anyone who has grown the Domino say if it is an improvement in these respects—i.e., is the fruit firmer, and does it adhere to the trees better? I should like to know the origin of this variety.—J. L., *Derby*.

[We shall be glad if any of our readers can state either the raiser of this Apple or by whom it was named.]

THE DYMOND PEACH.—A correspondent, "IRISH RECTOR," has sought information on this Peach. It is one of the most hardy and certain bearers, and the fruit is large and excellent. It has produced an excellent crop this year, and I think I could better spare any other tree than this. Reinette Franche Apple must either be grown under glass or on a south wall in this country to have the fruit in high condition.—J. E. P., *Notts*.

COMING CHRYSANTHEMUM SHOWS.

THE following list of approaching Chrysanthemum and autumn fruit shows will be useful to our readers.

- | | | |
|----------|-------------------|--|
| November | 9th (Thursday). | —Brixton. |
| " | 13th (Monday). | —Stoke Newington (two days); Lambeth (three days). |
| " | 14th (Tuesday). | —Royal Horticultural Society (Fruit and Floral Committees); Putney, Twickenham, Walton-on-Thames, Tooting (two days); Southampton (two days); Plymouth (two days). |
| " | 15th (Wednesday). | —Bristol (two days); Westminster Aquarium (two days). |
| " | 16th (Thursday). | —Kingston (two days); Tunbridge Wells (two days); Croydon. |
| " | 18th (Saturday). | —Leicester. |
| " | 21st (Tuesday). | —Liverpool (two days); Manchester (two days); Brighton (three days); Oxford. |
| " | 22nd (Wednesday). | —Northampton (two days); Birmingham (two days); Wimbledon. |
| " | 23rd (Thursday). | —Staines. |
| " | 29th (Wednesday). | —South Shields (two days). |

WINTERING STRAWBERRIES IN POTS.

THE time was when Strawberries for forcing were wintered in houses or heated pits, or placed on their sides in ridges, in which position the plants were nearly dried off with a view to resting

them, under the impression that plants thus treated would more readily respond to the combined influence of heat and moisture when removed to the forcing house later on. But now, happily, this somewhat barbarous and incongruous method of procedure has become a thing of the past, and in its stead a more natural, simple, and productive one has come into practice—namely, plunging the pots to the rims in beds of sifted coal ashes out of doors, leaving space enough between the beds, which should be about 6 feet wide, for getting to the plants as they are required for the forcing house, and also for the purpose of putting a slight covering of bracken over them in the event of severe frost. This, however, should be removed on every favourable opportunity. Thus wintered, and notwithstanding the fact that the whole—ashes, pots, and soil—have been one frozen mass for weeks at a time, we have had very few pots broken—not more than a couple of dozen out of nearly three thousand plants—by the action of frost. The fact is that hardy plants, whether they are grown for their fruit or flowers, once placed in a flower pot, have heretofore been coddled too much.—H. W. WARD, *Longford Castle*.



IN the biographical notes which accompany the excellent PORTRAIT OF DR. HOGG in the last issue of the *Gardeners' Magazine* reference is made to the "late" Mr. G. W. Johnson, the founder of the *Cottage Gardener*, and for many years co-editor with Dr. Hogg of the *Journal of Horticulture*. As the allusion in question has prompted inquiries from friends of the gentlemen to whom it refers, I have the pleasure to state that Mr. Johnson is quite well, and trust he will long enjoy the repose which he has so well earned after a long, active, and successful literary career.—J. WRIGHT.

— ON the occasion of the recent visit of the Duke and Duchess of Albany to Blythswood, Renfrew, the seat of Sir A. Campbell, a pretty idea was successfully carried out in the presentation of a bouquet to the Duchess, which was largely composed of the fragrant BOG MYRTLE (*MYRICA GALE*), which is THE BADGE OF THE CAMPBELLS. This little shrub is a native of Britain and very abundant in some parts of Scotland, where its leaves have been used as a substitute for hops. It is related to a well-known North American plant, *Comptonia asplenifolia*.

— A GARDENER recommends CHRYSANTHEMUM MADAME DESGRANGES as an excellent early-flowering white variety of the small Japanese type, which blooms very freely, and is thus especially useful where a large supply of blooms is required.

— MR. GEORGE DICKSON, late of Sutton Place, Surrey, has been engaged as head gardener to Capt. G. H. Elliott, Farnborough Park, Farnborough, Hants.

— MR. J. F. SHARPIN sends us particulars of what he describes as one of the most prolific Potatoes known, and adduces as evidence of this that one large tuber planted in the spring yielded produce weighing 20 lbs. This is not equal to the record of Col. Humberstone on page 409—namely, one tuber of Magnum Bonum yielding 25 lbs. 5 ozs. Mr. Sharpin's seedling has the high-sounding name of the Archangel.

— AT the annual meeting of the NEWCASTLE-UPON-TYNE BOTANICAL AND HORTICULTURAL SOCIETY the Secretary, Mr. James J. Gillespie, read the annual report, which gives a most favourable account of the past year's shows in a financial point of view, "the Society's indebtedness having been reduced by £321 6s. 8d., or from £401 11s. 5d. to £80 4s. 9d., notwithstanding the extremely adverse character of the weather during the spring show and on the second day of the summer show." The schedule

for next year has been issued; the shows being fixed for May 2nd and 3rd, and July 25th, 26th, and 27th, the usual liberal prizes being offered.

— MR. HUDSON, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, grows that old but useful plant *SPARMANNIA AFRICANA* exceedingly well, and a method he has now adopted deserves notice. He is training some young plants as standards with clear stems about 5 or 6 feet high, at which height they are stopped and allowed to branch freely, so as to form a compact head. For conservatory decoration such plants will be extremely useful, as the flowers will be seen to much better advantage than on taller specimens. As an example of the rapid growth made by this plant, it may be remarked that cuttings struck last March are now vigorous specimens 5 to 7 feet high; and an older plant that was cut down has made even stronger growth in the same period.

— A CORRESPONDENT writes:—"I find SUTTONS' GIANT SHALLOT the largest, best, and most prolific I have ever grown. It cannot fail to prove a boon to our large market growers generally, as in it we have what is needed—quality and quantity combined. It is also admirably adapted for exhibition, the bulbs being large and handsome. In the spring I purchased 2 lbs. of seed direct from Messrs. Sutton & Sons, and no especial care was taken in the preparation of the ground, it being simply manured and dug in the ordinary way, and the produce has far exceeded my expectations."

— IN reference to Messrs. Carters' CROWN JEWEL BEGONIAS noticed last week, we omitted to state that the flowers had been cut from plants in the open ground on October 25th. This fact affords evidence of the great value of Tuberous Begonias for affording a late and bright display in beds, as suggested by Mr. Young in another column.

— MR. C. WARING, Prince's Park, writes:—"I do not think it is generally known what a useful plant *CHRYSANTHEMUM LA NYMPHE* makes. I find it far more useful than many of the Pompons for house or conservatory decoration. Cuttings taken about the end of February or early in March and pinched once or twice will make dwarf compact plants requiring no stakes. The flowers, when the plants are allowed to grow naturally, reflex, but when pinched they grow erect."

— AMONGST the novelties announced for the ensuing year by a Marseilles nurseryman the two following are especially noteworthy—viz., *PELLIONIA RODOCANACHIANA* and *BEGONIA SEMPERFLORENS MASSILIENSIS*. The former is said to be superior to *P. DAVEAUANA*, having larger leaves, covered with a fine brownish down, striped and spotted with white. The Begonia is a hybrid between *B. semperflorens* and *B. Schmidtii*, and appears to be very similar to the hybrid of the same parentage shown by Mr. Smith, gardener to Mrs. Joad, Oakfield, Wimbledon, at the last meeting of the Royal Horticultural Society, under the name of *B. Smithii*. It is of stronger habit than *B. Schmidtii*, but dwarfer than *B. semperflorens*, the stems being of a reddish tinge, and the flowers pure white, of medium size, but very freely produced.

— AMONGST the *CYPRIPEDIUMS* now flowering in Messrs. Veitch's great collection of these plants at Chelsea, *C. selligerum majus* commands attention by the great size of the flower and the extreme vigour of the plant. The dorsal sepal alone is 3 inches in diameter, and its longitudinal markings of ivory white and bronzy brown render it a conspicuous object. The leaves are 2 inches broad and 18 long, dark glossy green, and arching gracefully. This imposing variety is the result of a cross between *C. barbatum* and *C. lævigatum*, and must be increased largely, as assuredly it will be in great demand when its merits become fully

known. The chaste *C. cardinale* is also flowering; the flowers combine the chief characteristics of *C. Sedeni* and *C. Schlimi* in a remarkable manner. It is very chaste. A free and very fine variety now in beauty is *C. calurum*, raised from *C. Sedeni* and *C. longifolium*. It bears a somewhat close resemblance to the former useful variety, but is larger and deeper in colour. The distinct and attractive *C. Fairrieianum* that was recently certificated at South Kensington is still flowering, and there are several blooms of the species, which all who see long to possess—namely, *C. Spicerianum*, with its pure white corona-like upper sepal. In striking contrast is the dark *C. purpureum*, a very dwarf free-flowering species from Hong Kong; while *C. insigne* and its much-improved variety *Maulci* are numerous and effective. With so many valuable additions to this fine genus of plants it is not difficult to have beautiful flowers during every week in the year.

— REFERENCE has been occasionally made during past seasons to the value for decorative purposes of *CHRYSANTHEMUM SÆUR MELANIE*. The merits of this variety for conservatory adornment, and for yielding flowers abundantly for bouquets and vases, is well exemplified by a number of plants now arranged in the great vinery at Chiswick. The collection there is large, but the most useful of all the varieties, for the last-named purpose especially, is the one above named. The flowers are white, small to medium-sized, the petals reflexed, and the blooms and buds borne in the greatest profusion. It may be remarked that the plants at Chiswick were planted out during the summer, and have recently been taken up and placed in round baskets about a foot deep and wide, such as are obtained at a cheap rate from Covent Garden. A few leaves were placed round the sides before filling-in the soil, and the plants appear to be thriving quite as well as if established in pots.

— THE *CHRYSANTHEMUMS* IN THE VICTORIA PARK are now fast approaching their best condition, and intending visitors should take the first opportunity of inspecting them. Mr. McIntyre has an erection about 250 feet long and 9 feet wide devoted to the plants, which are healthy vigorous specimens and flowering profusely. A large number of varieties are represented—Japanese, incurved, reflexed, and Pompons, the last-named forming a margin to the taller varieties; such old favourites as Mrs. G. Rundell, Mrs. Dixon, George Glenny, Dr. Sharpe, and James Salter being very numerous. The tent, or whatever it might be termed, which is reserved for the plants, is evidently unsuited for the purpose, and it is regrettable that a more convenient structure cannot be provided for them, especially as in other public parks and gardens such well-directed liberality has been displayed in this respect. It may be added, for the convenience of visitors, that the exhibition is near the main entrance at the south-west side of the park.

— THE FINSBURY PARK *CHRYSANTHEMUMS* are now extremely fine, the blooms being large, richly coloured, and many up to the exhibition standard in quality. As might be expected they have attracted large numbers of visitors, and will continue to do for several weeks yet. In addition to a good collection of the older varieties several of the most promising novelties are included, especially amongst the Japanesc, which are generally of excellent quality. Both Mr. Cochran and his foreman Mr. Marsden have gained a most satisfactory success in their efforts to render this exhibition one of the best of its kind around London.

— THE show of *CHRYSANTHEMUMS* IN THE MIDDLE TEMPLE GARDENS was opened to the public last week and is now in very good condition, the flowers being very abundant. The plants are rather later than those in the Inner Temple, but Mr. Snelling has grown them very well, and his exhibition is improving every year. They are arranged to form a sloping

bank, and the colours being bright they produce a very pleasing effect. It is quite unnecessary to enumerate the varieties, as a large proportion of the best in cultivation are grown, all sections being well represented. Particularly noticeable, however, were some fine examples of White Globe, with James Salter, Mons. Delaux, Striatum, and many others.

— IN addition to the above public displays there are now also very handsome SHOWS OF CHRYSANTHEMUMS AT SLOUGH AND SWANLEY in the nurseries of Mr. C. Turner and Messrs. Cannell & Sons respectively, both firms having a great number of plants in most satisfactory condition. The varieties represented include all the best of the old and new forms, and excellent opportunities are thus afforded for making selections.

— ACCORDING to the *American Cultivator* about \$30,000 worth of COCOA NUTS are annually shipped from Jamaica to the United States. Limes, Pine Apples, and Mangoes are shipped in small quantities. The MANGO is the most common fruit in Jamaica. It was brought there from the East Indies in 1772 by Capt. Marshall of Lord Rodney's squadron, and was first planted in a private garden in Kingston; thence it spread all over the island. It is the popular fruit of the natives, and is for them the mainstay of subsistence during June, July, and August.

— THE *London Gazette* recently published a copy of a decree of the Belgian Government, received by the Board of Trade from the Secretary of State for Foreign Affairs, by which the provisions adopted by the International Convention at Berne with a view of checking the ravages of the PHYLLOXERA are enforced. The importation into and transit through Belgium of Vines and dried cuttings, and also of slips and suckers of Vines from phylloxerated districts, is prohibited, but the latter articles may be imported from non-infected districts, subject to special authorisation from the Minister of the Interior. Market-garden produce, cereals, fruit, and cut flowers may be imported without special formalities; but all other plants, shrubs, and vegetables (not being Vines or parts thereof) can only be admitted by the Custom Houses of Antwerp, Brussels, Ghent, Liège, and Ostend, or, if coming by the land frontier, by any Custom House situated on a railway. The import of such plants is also subject to certain conditions set out in the decree.

— IN reference to BEES ATTACKING GRAPES a correspondent sends the following:—

"It has been thought, not only in this country but in America and on the Continent, that the bee is the enemy of Grapes, and that it destroys not only luscious fruit, but also other sweet pulpy fruits. A very observant correspondent of the 'Scientific American' defends the popular honey-gatherer from the charge. He has watched the little workers for years, and has been loth to believe it. He observed long ago that they never attacked sound Grapes, but when defective or split as the result of a rainy spell they would then suck out the juice. Being unable to convince others of the harmlessness of the insect in any other way, he devised for that purpose the following experiment, which anyone may try for himself. At the mouth of the hives he places several bunches of various varieties of thin-skinned Grapes, and for days, although the bees were constantly crawling over them, not a berry was injured. He then punctured half of the berries on each bunch, and instantly the bees went to work on all so punctured, in a short time sucking them dry. The remainder of the berries were untouched, and remained so until punctured by him, when they in turn were attacked as promptly as the former. This experiment demonstrates that it is necessary for the Grape to have been previously injured, so as to allow exudation of juice, otherwise the bee will not molest it. And when we reflect that the berries thus injured would decay, it will be seen that the bee actually saves us what would otherwise be lost, by storing it up as honey."

BUCKLAND SWEETWATER GRAPE.

ON page 391 "W. L. H." describes this as a comparatively worthless Grape. My experience leads me to differ from him, although I do not wish to criticise his choice of white Grapes in search of a companion to the Black Hamburgh for an early vinery. It is only reasonable to expect that each would speak well of the

bridge that carries him safely over. As regards colour and size of berry, I fail to see how either the Dutch Sweetwater or Ascot Citronelle can be preferred to Buckland Sweetwater. "W. L. H." also states that when Buckland Sweetwater is most perfect in flavour the fruit is only just beginning to colour, the quality even then being no better than Sweetwater, and at any exhibition on the ground of colour alone it would be discarded by all good judges, it partaking of an objectionable brown tint. In reply to this I have only to refer to the fact that amongst white Grapes, so extensively shown at York, Leeds, and other early spring shows, Buckland Sweetwater is invariably amongst the leading prize-takers, and I have never heard a judge condemn this Grape in point of flavour, size of berry, or "objectionable brown colour." As regards the Vine's fruiting character, I have generally one-half the bunches to cut off to obtain an even crop. As regards Foster's Seedling there remains no doubt of its good qualities. It is a Grape found almost in every establishment, and some gardeners prefer it to Buckland Sweetwater, but as an early Grape I do not. —H. A. M., *St. Vincent's*.

"G. R. A." (page 412), anent my note on Buckland Sweetwater Grape, says that this Grape "realises a higher price in the market than Foster's Seedling." Permit me to say that I did not make any allusion to its value as a market Grape, but regarded it solely from a private gardener's point of view. I have no doubt but that it sells better than Foster's Seedling, but it must be remembered that those who have to grow Grapes for a gentleman's table and growers for market have a very different object in view. The one studies quality, or should do, whilst the other, generally speaking, gives the preference to appearance and size of fruit in particular.

With regard to Golden Queen, I may state that this is not an early Grape, as some might infer from "G. R. A.'s" note, it being at least six weeks longer in ripening than the Black Hamburgh; and my note was penned with a view of eliciting opinions as to the best white companion to the Black Hamburgh other than, from my point of view, the unsatisfactory Buckland Sweetwater. —W. L. H.

HECKFIELD PLACE.

AT Heckfield there reside two celebrities—one a giant in the parliamentary world, a veteran in the service of his country, which he has served well through successive generations. This is the noble owner—Viscount Eversley, once known as Charles Shaw Lefevre, Esq., who occupied the responsible position of Speaker of the House of Commons sufficiently long to entitle him to the possession of three Speaker's chairs, which now comprise part of the furniture of the mansion, and destined without doubt to become historical, for the value of such trophies cannot but increase with age, and be prized by future generations of the family in possession of them. The other celebrity is his lordship's gardener, Mr. Wildsmith, one of the most able, active, persevering, and successful workers of the day in the ancient industry of horticulture. But Lord Eversley is a gardener too, his technical knowledge being great, his taste admittedly good, and the interest which he takes in his garden and grounds, their improvement and adornment, active and real. When we thus find master and man alike capable and earnest, both devoted to the same object, and working together in unity, the former honoured and the latter trusted, we expect also to find something worth seeing, and hence recording; and much that is noteworthy was certainly seen at Heckfield in September.

My acquaintance with the products of Heckfield was, until six weeks ago, limited to the examples at public exhibitions. Both in London and the provinces an exclamation that is familiar to many has often greeted my ears—"What! Wildsmith first again! he is determined to be in." Yes, but skill must be added to energy to enable a competitor in the fruit classes at a Royal Botanic show to secure the splendid prize offered by the Fruiterers' Company to the premier exhibitor when a Coleman is in the field. This is one of Mr. Wildsmith's many honours, and perhaps the most prized, that he has succeeded in winning in some of the leading contests. Let us now look at his work at home; but first at the scene of his labours.

Heckfield is situated in one of the most picturesque and salubrious districts of Hampshire, and is about five miles from Winchester station on the South-Western Railway. The mansion stands on a knoll or spur in a well-wooded and beautifully undulated park. The pleasure grounds are agreeably diversified with grand deciduous trees, handsome Conifers, luxuriant evergreens, excellent walks, charming lakes, and splendid lawns. The terrace flower garden, while not being one of the largest, is without question one of the most beautiful and best kept of its kind in the kingdom; the kitchen garden one of the most productive; and the glass department not

only famed for superior fruit, but for the unusual, if not unique, feature of "Vines growing on their heads." The site is somewhat elevated, the soil light yet fertile, and the rainfall low, conditions which will probably account in a great measure for the wonderful crops of Pears with which nearly every tree in the garden was loaded. Such is Heckfield in outline. Let us now try to fill in the picture, commencing with the

FLOWER GARDEN AND PLEASURE GROUNDS.

Fortunately we have the aid, in such a case indispensable, of the artist's skill to show what no pen could adequately portray—the characteristic beauty of the flower beds at our feet, and the splendid near and distant view before us. We will first ascend the terrace, and then take our standpoint where the artist took his, and see how the garden verges into the park, and the park is lost in the far-off range of hills which bound the horizon. The terrace is formed along the east and north sides of the mansion, and is probably about 100 yards long by 20 wide, supported by an ornamentally built wall, the side facing the grounds being partially masked with evergreens. The approach is by a short flight of steps at the south-east corner, and near the foot of the steps on the lawn stand two grand sentinels, natives of another clime than ours, yet evidently acclimatised, healthy, and happy—namely, a remarkable pair of *Chamaerops Fortunei*, planted in 1869, and now grand specimens, with massive trunks and noble heads, which would afford shelter to a good many Wildsmiths if they could but stand still. The plants, or trees, have had no protection afforded them since the first winter after they were planted, but they are supported with fresh soil annually, the turf being removed for that purpose and laid down again. It is to this care that must be attributed the large, handsome, glossy leaves. They are well matched in every respect, as they are not only of the same size but of different genders, and are the parents of many plants that have been raised from them since they were established in their positions. It is doubtful if the same can be said of any others in the same latitude in this country, and thus these Chinese visitors may fairly be said to have taken up their nationality at Heckfield. To the left of them is a sort of shrub-clad rockery, on which the beautiful Conifers *Cupressus Lawsoniana argentea* and *C. L. erecta viridis* show to great advantage, the Rose of Sharon, or St. John's Wort (*Hypericum calycinum*), forming a pleasing groundwork, and contrasting effectively with the darker evergreens. Elevations such as this are precisely adapted for small choice Conifers, including the elegant *Retinosporas*, of which there are so many distinct forms, and the suggestions afforded by such examples as this should not be lost. But we pass onwards and reach the terrace.

The broad walk is close to the mansion, with the lawn and flower beds slightly below us on the right. The walk terminates in an alcove or fernery, that is often used as a breakfast room in summer, and delightful it must be when the slanting rays of the morning's sun flit and dance among the Palm leaves and Fern fronds. At this end the terrace is bounded by a hedge of the Nootka Sound Cypress (*Thujopsis nutkaensis*, syn. *T. borealis*), which extends westwards for a considerable distance, and forms a fine screen separating the kitchen garden from the pleasure grounds.

We will now stand where the artist stood, near the centre of the north terrace, and look around. On the left is the terminal Cypress screen just referred to, and its background of Limes. As will be seen in the engraving (p. 433) the centre of the lawn is occupied with large baskets of flowers. These are made of terra cotta, are oval in form, and of chaste design. The two larger are about 14 feet long, the four smaller 8 feet, and all of them about 2 feet high. They were filled chiefly with the intensely bright double Cactus Dahlia *Juaresii*, and the rich single variety Paragon, not formally staked, but each plant affording support to the other, the whole forming a great tangled mass of flowers. These were relieved by groups of white and golden *Marguerites*, *Heliotropes*, &c., with *Tropæolums* scrambling among them and falling over the sides here and there, as if escaping from an overlaid receptacle. The plants appear to have been inserted, and then as regards their outline left to take their chance. Their growth has been a floral struggle as if to represent the survival of the fittest; and the freedom, almost wildness, of the arrangement was not only pleasing in itself, but by force of contrast the trim and highly finished compact beds were shown to great advantage. It is not easy to imagine how a terrace of this kind could be rendered more effective. If the whole of the beds were carpeted the effect would be heavy and too severely formal; while if they were all planted like the baskets, and especially if they were filled with hardy border plants, they would be quite out of harmony with the site and surroundings.

The round beds in the design are carpet beds pure and simple—that is to say, contain no flowers. A *Cordylina*, variegated *Yucca*, or *Phormium* occupies the centre, which is cushioned with *Sedum*

glaucum and belted with *Echeverias*, then a raised star of *Sedum*, similarly banded with rays of *Alternantheras*, resting on a groundwork of *Herniaria glabra*, the centre of the crescent-shaped segments containing a plant of the silvery *Chamaepeuce diacantha*. This is only a typical method of planting, as any attempt at accuracy is not called for where the designs vary from year to year. The oblong beds have flowers in the centre, with a carpeted margin 30 inches wide, the groundwork being *Herniaria*, the bands *Veronica incana*, and the designs in character with the round beds. Thus the central flowers balance with the baskets, while the margins are in keeping with the carpet beds. The general effect of the terrace is bright yet chaste, and altogether excellent.

The east terrace is somewhat different, some of the beds surrounding the central groups being barred with such plants as *Ageratum* *Cupid*, *Pelargonium Manglesii*, *Gazania*s, &c., with smaller beds near the walk carpeted, some of the panels in the *Herniaria* being outlined with Golden Feather, very small, mere streaks of yellow, while the back beds next the terrace wall were mostly occupied with single Dahlias. It should be stated that all the beds are raised above the surface 3 or 4 inches, and covered with *Herniaria*; the margins, however, not sloped in the usual manner, but perpendicular, like squarely-cut Box edging, and so smooth and accurate is the work done that the beds appear as if placed on the grass. Between them on this terrace are small specimen Conifers on the lawn, such as *Retinosporas*, and the beds in winter are filled with these, Golden Yews, and variegated evergreens in place of the tender plants removed, the groundwork and belting, consisting mostly of hardy plants, remaining untouched. Thus this terrace, while strikingly beautiful in summer, is agreeably furnished in the winter with comparatively little expenditure in material or labour.

Of its kind this is a model garden both in design and execution. Surpassed by none and equalled by few, both the noble owner and his gardener have great reason to be proud of it, while the public during one week in the year have a great treat generously provided; and although distant from any large town, two thousand persons availed themselves of the privilege of inspecting it during the open week of the present season. This plan of giving a whole week to the public is found more convenient to all than having visitors during one or two days of each week over a period of two or three months.

The view from the windows of the mansion across the terrace to the pleasure grounds and scenery beyond is extremely beautiful. From the flat roof of the house, where a tent is erected and tea had almost daily in the summer, it is grandly picturesque, the whole district far as the eye can reach resembling a magnificent park. In the foreground are boldly swelling hills smooth as velvet, some 20 or 30 acres being regularly machined, and not a "bent" to be seen to mar the effect of these splendid lawns. The valley conducts the eye to the distant lakes, with the island of *Rhododendrons* in one, and a handsome bright green cone-like specimen of the Deciduous Cypress (*Taxodium distichum*) at the head of the other, and all around grand specimens of Oak and Beech, which cast their shadows, clear and strongly defined, on the closely shaven grass.

On our way to the lake we traverse the pleasure grounds to the right of the engraving, and here we find many handsome Conifers—*Abies Douglasii* 100 feet high, a magnificent specimen of perfect shape, and of that rich dark green colour which is characteristic of this fine Fir when in its best condition, with dozens of younger specimens 20 to 30 feet high planted by Mr. Wildsmith not more than a dozen years ago. Also *A. cephalonica*, *A. nobilis*, *A. Nordmanniana*, *A. magnifica*, and *A. grandis* from 30 to 80 feet high; the graceful *A. Albertiana* and *A. canadensis*, many Cedars of Lebanon, Deodars, fine *Araucarias* and *Cryptomerias* in excellent health and colour, and a splendid bush of *Pinus insignis* distinct by its own peculiar soft yet verdant green. Captivated by the handsome appearance of this Pine an experienced gardenor practising in the south of England recently strongly urged that it should be more generally planted. Unfortunately it is too tender for our climate "generally," and the greater part of the country has been practically denuded of specimens by the severity of the frost, and the fact should not pass unrecorded. Passing the imposing specimens mentioned, the walk conducts into a wood remarkable for splendid Larches, Fern dells, and pheasants. Turning to the left the junction of the two lakes is reached—a charming spot. A winding walk has been cut through masses of *Rhododendrons*, and we find an alcove here, a seat there, a secluded nook on one hand, a rockery on the other, all attractively furnished, and in a sheltered depression a subtropical garden filled with elegant plants growing luxuriantly, and relieved with handsome specimen *Cupressuses* and *Retinosporas* on the lawn. *R. plumosa aurea*, *R. obtusa aurea*, and *R. alba nana*, with *Thujopsis dolabrata variegata*, range from 7 to 9 feet high, and must be included amongst the choicest, hardiest,

and most elegant Conifers in cultivation. From here the walk curves and passes an old vinery—the Vines sixty years old and bearing good Grapes, a rosery in front, splendid Conifers and handsome standard Portugal Laurels with heads 20 to 30 feet in circumference—and enters the kitchen garden on the left of the engraving through the Cypress screen previously mentioned, and the end of which is seen near the flower garden.

THE KITCHEN GARDEN.

This is ornamental as well as useful. The central walk is bounded by hedges of *Cupressus Lawsoniana*, with borders about 5 feet wide in front of them attractively planted. At the back next the hedge the Cactus and Paragon Dahlias were planted alternately a few yards apart, with Golden Marguerites between them. A splendid row in front of *Sedum spectabile* very rich in colour, the front of them being carpeted with *Herniaria*, in which were small round and oblong panels a yard apart, containing alternately neat examples of *Cupressus Lawsoniana erecta viridis* and *Retinospora plumosa aurea* in the oblongs, and *Chamaepuce diacantha* in the round beds, the latter having a groundwork of *Alternantheras*, and the former of Silver Thyme and *Sedum glaucum*. The cross walk is arched over with Pears at intervals of 4 or 5 feet, and every arch was wreathed with fine fruit, the whole viewed from the end resembling a tunnel of Pears. The pyramids and bushes in the borders were equally laden, as also were the cordon, fan, and horizontally trained trees on the walls. My gardening tours have extended over some two thousand miles this year, but I saw more Pears at Heckfield than in all other gardens put together that I had the pleasure of visiting. One large tree of Pitmaston Duchess on a wall was the pride of the garden, the huge clear fruits hanging in the greatest regularity about a foot apart, indicating first that the fruit had been carefully thinned and then well supported. The crops of Peaches and Apricots on walls were similarly good, and the trees in the most healthy condition. Great attention is evidently paid to hardy fruits, and to this in conjunction with climatic advantages must be attributed the remarkable crops referred to.

The soil, as before mentioned, being light, and district dry, deep trenching after every crop is resorted to in the vegetable department. A fine breadth of the Reading Exhibition Brussels Sprouts, unquestionably one of the best strains of modern selection, showed the efficacy of the practice, as equally did the large handsome Onions, a selection from the Improved Reading; Mr. Wildsmith having thus undertaken the high task of improving the "improved." In fact he seems to be animated with the desire to improve everything, and has had quite a fair share of success.

GLASS DEPARTMENT.

Apart from a range of vineries and Peach houses of considerable dimensions the glass structures are not large, but they are numerous. Small span-roof houses, half-spans, and lean-to pits have been packed together wherever there was a little space to be covered in the enclosure—useful structures turned to excellent account. There are pineries filled with sturdy, healthy, vigorous plants, Melon and Cucumber houses, a Fig house, Strawberry house, forcing and plant pits, one containing *Gardenias* in pots plunged over their rims in leaves and growing like Laurels. The Strawberries in pots were excellent, *Vicomtesse Hericart de Thury* and *President* chiefly—the former for ripening in February, the latter for succession. But space diminishes, and we must pass much that is worthy of note; but cannot pass the Vines in silence.

There are eight vineries. Mr. Wildsmith has a fancy for having the roots of Vines either wholly in inside or entirely in outside borders. That the plan answers well the results testify; but it is not improbable that equally good crops of Grapes would be had under what may be termed the mixed border system. No one will be surprised to hear that Muscat Vines in an inside border were in every way superior—full heavy well-shaped bunches, and large and highly finished berries. But it is not everywhere that first-class Black Hamburgs can be ripened in April with the roots of the Vines entirely outside and no fermenting materials placed on the border. But such Grapes are produced under these conditions here. In a mixed house Mrs. Pearson and Golden Queen were admirably represented by large bunches and fine clear berries, while Gros Colman and Alicante were of exhibition quality. In a house of young Vines, inside border, Alnwick Seedling is succeeding so well that the Vine is being managed on the extension system. The crop is extremely heavy, the large fully set bunches being numerous, and berries fine in size and finish.

The Vines in two other houses demand special notice—in one case because they have been raised in a manner that is not usual, and in the other because they are, mountebank fashion, "standing

on their heads." First as to the young Vines. The eyes were inserted in curves in the spring of the present year, started, placed in the borders (inside) at once, and covered with bellglasses. The canes are now in the most satisfactory condition, stout, strong, well-matured, and ready for bearing an excellent crop next season. In fact, some of them have produced bunches already, one or two of which were allowed to remain. This is certainly not a common occurrence, and must be taken as a satisfactory index of the state of Vines only about nine months after the eyes were inserted, and good augury of future work.

And now we come to the topsy-turvy, or mountebank Vines. A lean-to house facing south was planted in 1869 with Lady Downe's and Mrs. Pinck alternately. The latter, as being least satisfactory, were eventually removed, and an additional rod taken from the former. The crops were excellent, and the lean-to was converted into a span-roof, the rods being trained down the new roof facing north. When they reached the base of the rafters it occurred to the cultivator to take them a little lower, even to the earth. There they rooted freely, so that each Vine had three sets of roots, and in that state the Vines produced splendid crops for some years. "But in that form they cannot be said to be wrong end upwards," some may observe. True, but the case is proveable. During the past winter it was determined to clear half of the roof of one side of the house, make a new border, and plant young Vines. The south side was naturally preferred, but it was on this side that the original Vines were planted; yet notwithstanding, the rods were sawn asunder under the apex of the roof, and the old Vines cleared out, leaving the rods on the other side that had rooted at their extremities to take their chance. This proved a very good one, for the crop of Grapes on them, curious as they look with their thick ends at the top of the house, is excellent, quite as good as those at the other end that have yet each three sets of roots. It is a regular, useful, and good crop, such as hundreds of persons would be glad to possess. On the side cleared eyes were inserted in the border as above described, and now the roof is covered with fine young canes. There is no doubt whatever that the topsy-turvy Vines are precisely as stated, and they have not declined in vigour in the slightest degree by the ruthless treatment to which they have been subjected.

And now we leave Heckfield. I have seen many beautiful scenes on the fair face of Nature, but this is certainly one of the fairest and the brightest. It is cherished, too, by its noble owner, who has spent nearly ninety summers in its shady woods and verdant slopes. His eye still bright, taste keen, and mind as clear as ever, he is the trusted adviser of the great, while he lives in the hearts of those by whom he is surrounded. His kindness to his gardener during the long illness following his sad accident of a year ago, and from which he has not yet recovered, it is pleasant to record, and pleasant also to note the devoted attachment of the gardener towards his excellent master. Here is the secret of the high condition of the place—mutual trust. Good taste in arrangement, economy in management, excellence of culture, and extreme neatness are here found. Long may they remain, and may he who has worked to such good purpose have as a reward the great blessing of restored health.—J. WRIGHT.

THE DURDHAM DOWNS NURSERY, BRISTOL.

FOR many years Messrs. J. Garraway & Co.'s establishment at Bristol has held a deservedly high position amongst the nurseries of the west of England, and under judicious management its prestige is not only being satisfactorily maintained but also considerably increased. The Durdham Downs Nursery may claim a position amongst the historic trade establishments of this country, for during the greater portion of the present century it has been devoted to the cultivation of plants, and in its earlier days to the extensive growth of indoor fruits. Like many others in the suburbs of populous towns, it is now, however, being fast surrounded by houses, and in the course of a few years little except the ground occupied by the glass erections will remain of the original nursery, which is even now much less in dimensions than it was in its youth. This is chiefly due to the site being one of the finest in the immediate neighbourhood of Bristol, greatly elevated above the busy, smoky, and uninviting town; moreover, in proximity to a fine expanse of common-like land, and the picturesque Clifton district, the salubrity of which has attracted all the wealthy Bristolians. In consequence, Messrs. Garraway & Co. have found it necessary to take another nursery at a greater distance from the town, and the traveller cannot now fail to notice near the railway, about half way between Bristol and beautiful Bath, a considerable extent of land occupied with fruit trees, Roses, with abundance of hardy evergreen and deciduous shrubs and trees, all appearing exceedingly healthy and vigorous, as they should be in so fine a climate. Thence are drawn the supplies for executing the firm's numerous large orders for hardy plants and trees, and more satisfactory samples could scarcely be desired, particularly the fruit trees

and Roses, which form special features, as the old nursery has secured a well-deserved renown in these departments.

Returning to what is still the headquarters, the principal characteristics of the indoor stock may be briefly referred to. It should be observed that in this branch of the business all the best stove and greenhouse plants receive a large share of attention, the collection being select in the strictest sense of the word, as the space at command is necessarily limited; and although the houses are numerous, and several of good dimensions, with frames and other conveniences, all are well filled, and it is not easy to find accommodation for the large stock which has to be annually provided. One of the chief features at the time of my visit, early in September, were the Tuberous Begonias, which, to meet the rapidly increasing demand, are grown in very large numbers. Most of the best-named forms are included, but by careful crossing and selection a meritorious strain has been obtained, which is of such general excellence that it is not considered necessary to name individual variations, but to supply either seed or tubers as purchasers may require. The plants were of good compact habit, and distinguished by remarkable floriferousness; and though the blooms were slightly smaller than some of the recently raised varieties, the colour (various shades of scarlet), was remarkable for its brilliancy, the sturdy habit and abundant flowers far more than

compensating for the slight deficiency in size. It is a regrettable fact, indeed, that too many of the large-flowered varieties are shy bloomers, and for decorative purposes they cannot be compared with the smaller but freer sorts. Besides the scarlets, there is a race of the yellow-flowered *Pearcei* type. A dwarf race of the *Davisi* and *Veitchii* types, with representatives of several other species, are also grown in large quantities, and were extremely beautiful. *B. Frœbeli*, so very distinct from the others, is a rather attractive plant with its large rough woolly leaves and round scarlet flowers, and it is rarely seen in such good condition as it is at the Durdham Down Nursery. The useful *B. semperflorens*, with its rosy-tinted variety, is grown by the thousand, and certainly the two plants are almost invaluable for winter decoration, not only on account of their freely-produced white and rosy flowers, but because the foliage is of such a fresh, shining, bright green colour—in itself a great recommendation.

Florists' flowers constitute an important feature at this nursery, all the popular kinds being largely and well grown. The firm is much noted for their Balsams, and, judging by the plants in some of the houses, their fame is well merited. Three self colours are particularly good—viz., purple, scarlet, and white, all pure; the purple rich, the scarlet brilliant, and the white clear. The flowers, too, are very large, full, of good form, and abundant. Striped, mottled, and other parti-

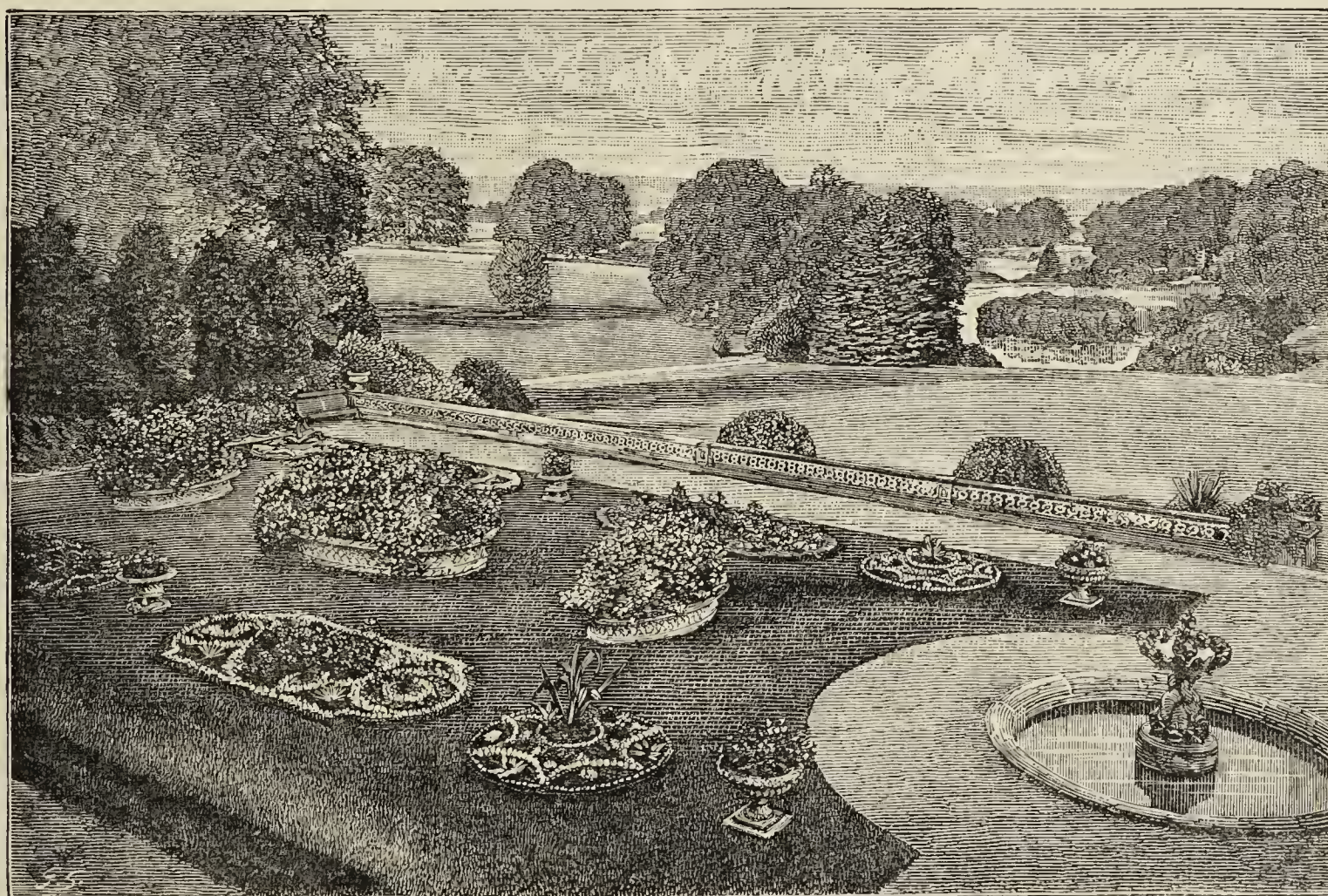


Fig. 72.—HECKFIELD PLACE—THE FLOWER GARDEN AND PLEASURE GROUNDS. (See page 431.)

coloured forms are similarly fine; but the greatest praise must be accorded to the three first, which scarcely admit of improvement. Well-grown Balsams are always admired, and they prove most welcome additions to any conservatory in the summer months. A very large per-centage of the seed yields plants with double flowers, and this is attributed in part to keeping the seed a year or slightly longer before sowing it, a practice which is adopted by many others with the same view; but whether it has a substantial foundation is not quite certain, though results I have myself obtained seem to point to that conclusion.

Pelargoniums of the Zonal and Nosgay types were in grand condition, the collection including the finest old and new varieties, a houseful in full bloom rivalling the Begonias in effectiveness. Viewed in contrast like this, the difference between the scarlet shades of the Pelargoniums and those of the Begonias was very surprising—a difference that can be scarcely expressed by words, though as regards brilliancy a verdict would have been given unanimously in favour of the first-named. It is unnecessary to give a list of the varieties, as they were so numerous, and each possessed some special merit to commend it. Of other softwooded flowering plants Primulas were advancing fast and giving promise of a fine display later in the

season, while due provision had been made for Cinerarias, Calceolarias, and Cyclamens.

In the warmer houses Palms, Ferns, and miscellaneous fine-foliage plants occupy much space, healthy specimens of various sizes. Gardenias, those indispensable plants wherever fragrant white flowers are valued, are evidently very carefully treated, for it is seldom that such healthy specimens are seen. With Gardenias as with other plants it is highly important to make a good start; and unless vigorous plants are obtained that have been grown robustly without a check it is extremely difficult to ensure successful results, and nurserymen who give particular attention to the culture of such plants in their early stages render the gardener's task much more easy. Bouvardias, Stephanotis, and in cooler houses Lapagerias red and white, are similarly largely and well grown; while amongst the novelties the graceful *Gymnogramma sebizophylla*, the double Bouvardia, and *Gynura aurantiaca* with its peculiar purplish velvety leaves, were being fast increased to meet the demands for them.

The borders outside were occupied with choice collections of hardy plants, amongst which Delphiniums, Phloxes, and Sweet Williams were prominently noteworthy, the varieties and strains of these plants being remarkably good. Annuals, too, are extensively grown,

some very handsome *Mimulus* attracting much attention; while that widely famed *Mignonette*, Garraway's White, which holds so high a position in popular favour, was represented by an admirable sample. It should be added that every department, though only briefly noted here, indicates most careful superintendence, while the preparations being made at the time of my visit for the autumn seed and bulb trade prove them to be important branches in the business of the firm.—SAXON.



KITCHEN GARDEN.

WHEN the haulm of *Asparagus* is decayed cut and remove it, giving a good dressing of well-decomposed manure, and point it in, avoiding covering the crowns too deeply with fresh soil, for when that is done they are seriously injured, the roots not unfrequently perishing. The decayed leaves of *Seakale* may also be removed, and the crowns covered with spent tan, cocoa-nut fibre refuse, or ashes; but when this is grown for forcing under cover it is better to take up the roots at once and lay them in a sheltered place, covering only the crowns of that to be forced or blanched outdoors. *Globe Artichokes* having been cleared of decayed leaves have the growth hardened, and should be protected before severe weather, ashes being very suitable, the soil being removed from the stools, and the space filled with ashes brought well up about the crowns. The ashes are not only a good protection against frost, but help to check the slugs. Fill any vacancies in plantations of *Cabbages* and *Lettuces*, keeping them free from weeds, and the soil stirred in favourable weather around the plants. Similar remarks apply to *Winter Spinach* and *Onions*. All decayed leaves should be removed from *Brussels Sprouts*, *Winter Greens*, and *Broccoli*, so as to admit light and air, and thereby harden them against frost. Where *Broccoli* are very vigorous and long in the stem the plants should be laid down with the heads inclined to the north, and the stems up to the leaves covered with soil. This, from checking the growth, will enable them to withstand severe weather.

Forcing Department.—Where *Potatoes* are required early a first planting may now be made, the sets being placed to sprout in boxes of leaf soil in a house with a temperature of 55° to 65°. For their reception a hotbed should be formed in a pit to which artificial heat can be applied in severe weather to maintain a temperature of 60°, and permit ventilation when external conditions are favourable without depressing the temperature, but allowing an advance with free ventilation to 70° or 75°. Two or three parts leaves to one of stable litter are suitable materials for forming the bed, if well incorporated and turned over occasionally, and damped if necessary. This should be put in firmly, so that when settled down it will be about 18 inches from the glass. Six inches depth of light rich soil being placed in, the sets should be introduced when the soil is warmed through and they have grown a couple of inches, being careful to preserve their roots and the sprouts, planting about 4 inches deep. *Early Bird* and *Veitch's Ashleaf* are fine kidney varieties, and *Coldstream* or *Smith's Early Selected* a good round sort. Plant in rows 15 inches apart and 1 foot asunder. Failing an artificially heated pit a hotbed may be made of the materials above indicated to a height of about 3 feet, well beaten together, covered with a frame, 6 inches of soil being placed in, and when warmed through sets inserted at the depth and distance above stated, taking care that the heat does not exceed 70° to 75°. If desired *Early Forcing White* and *Scarlet Turnip Radishes* may be sown in the same bed, in which case the lights should be withdrawn except when frost prevails until the *Radishes* have formed their second leaves, when their growth may be accelerated, but ventilating freely on all favourable occasions, protecting with mats over the lights in severe weather, and applying livings to the sides of the bed to maintain the heat.

Beds about 2 feet in height well beaten down will be suitable for *Radishes*; tree leaves, with a portion of stable litter to bind the

material together, afford a suitable heat. Four inches of light rich soil is ample, and, the seed being sown and covered, the lights may be put on until the seed leaves are appearing through the soil, when the lights must be withdrawn whenever the weather is mild, continuing this until the rough leaves appear, when their growth may be forwarded more rapidly with due attention to free ventilation. *Early Forcing White* and *Scarlet Turnip* are admirable varieties, and so are *French Breakfast* and *Wood's Frame*. In the same frame with the *Radishes* *Carrot* seed may be sown in alternate rows about 4 inches apart, and these will succeed the *Radishes*. *French Forcing* is the best very early variety. *French Beans* must be sown in pots at intervals of a fortnight or three weeks according to the demand, earthing up those advanced, and keeping them as near the glass as practicable. Supply those advanced for flowering and podding with weak tepid liquid manure, giving them a temperature of 60° to 65°, advancing to 70° or 75° with sun heat.

A few roots of *Rhubarb* may be placed in the *Mushroom* house or other suitable house, a temperature of from 55° to 65° being necessary. *Seakale* with well-developed early-ripened crowns should likewise be placed in the *Mushroom* house, but light must be excluded so as to insure blanching; light moist soil is necessary, just covering the crowns. Water should not be given until growth commences. For the successful forcing of *Asparagus* a bed of leaves and dung is necessary, mixed and turned occasionally so as to secure a mild heat. If required early a bed may now be made, and when the heat does not exceed 75° a couple of inches depth of soil being placed on the bed, the roots introduced, and soil worked in amongst them level with the crowns, the crowns—i.e., the whole surface of the bed, covered with about 3 inches thickness of light sifted soil or spent tan. Unless the demand be absolute there is nothing gained by the very early forcing of this vegetable, which to be full-flavoured requires free ventilation after the heads appear.

FRUIT HOUSES.

Peaches and Nectarines.—Where ripe fruit is required early in May, and of the very early kinds in April, and the trees in the earliest house having been dressed with an insecticide, the branches secured to the trellis, the borders surface-dressed, and the house thoroughly cleansed and repaired as advised in former calendars, the house may now be closed; but air must be given freely when the temperature in the house exceeds 50°, and artificial heat must only be resorted to when needed to exclude frost, for the slower the trees are started the stronger will be the blossom and the greater the probability of a good set. The inside border should be given a good watering at 70° to 75°, repeating if necessary to bring the soil into a thoroughly moist state. In the case of weakly trees tepid liquid manure will assist them considerably in swelling the buds and blossoms. Damp the trees and available surfaces in the house twice daily in bright weather, but it is necessary to syringe early in the afternoon so as to have the trees dry before night. If fermenting materials are at hand a sufficient quantity of three parts Oak or Beech leaves and one part stable litter should be thrown into a heap and incorporated, damped if necessary, and after being turned twice these may be employed for making up a bed inside the house a couple of feet in height, and being turned over occasionally and fresh material added, a genial condition of the atmosphere will be secured, highly favourable to the swelling of the buds and expanding blossoms, also lessening the need of fire heat. The outside border must be well protected with litter or dry fern; and if shutters or tarpaulin be put on the top it will not only throw off heavy rains and snow, but prevent the materials being blown about.

As the trees in succession houses cast their leaves they should be pruned and dressed, the house thoroughly cleansed, and the borders surface-dressed. If summer-pruning has been properly attended to there will be little need for the knife—indeed, we have not used the knife for some years when the trees are leafless to trees under glass, as they ripen and are furnished with fruit buds on shoots of several feet in length to their points. Beyond thinning the growths where too crowded, and any weakly old wood, for the encouragement of stouter growth, pruning *Peaches* and *Nectarines* when leafless is fast becoming obsolete. The exposure of the trees is highly bene-

ficial, and should be practised annually when the roof lights are moveable to secure the thorough moistening of the borders by the autumn rains, perfect rest for the trees, and the cleansing of them from insect pests. Where the lights are not moveable admit air both top and bottom to the fullest extent, and be careful not to allow the soil of inside borders to become dry.

THE BEE-KEEPER.

THE ART OF BEE-KEEPING.

INTRODUCTION.

WE may safely assume that no apology is required for the issue of a new series of papers on the art of bee-keeping, seeing that in principles and practice it has of late made such astonishing progress that works on the subject are considered behind the times, though only a few years old. The advances in the art since the introduction of the moveable-comb hive by the late Mr. Woodbury in England and the Rev. L. L. Langstroth in America, with the succeeding inventions of the honey-extractor, comb foundations, and sectional supers, mark the last quarter of a century as an era of revolution in bee-keeping; and signs are not wanting to indicate that we have now at length reached a stage of practical unanimity and fixity of opinion as to the main principles of the art. To embody these principles in a succinct form, and to indicate the methods employed by the most successful of modern bee-keepers, will be the aim of these papers.

Bee-keeping has for thousands of years been one of the most attractive of rural arts. Poets have sung its praises and philosophers have studied its mysteries for many ages. To this day many are attracted to it more for the pleasure it affords, and the marvellous exhibitions of animal instinct it yields, than for the profit it undoubtedly gives to those who know how to turn these instincts to account. It is an art that lies within the reach of all who delight in rural employments and recreations, from the student of physiology to the plodding country cottager. It has been successfully practised by delicate women as well as by robust men. It has absorbed the attentions of many whom it has attracted from listless apathy or misspent time and talents, and it has been a source of increased comfort in the circumstances of many whose great concern is how to get "ends to meet."

We do not, however, urge the universal adoption of bee-keeping as a sure and easy road to wealth; for, being an art that requires perhaps more than the usual application of intelligence and industry, it will be readily understood that it numbers among its practisers the successful and the unsuccessful, the latter of whom are perhaps oftenest heard of. What we do urge is that all who have a suitable situation for a few hives, with the necessary habits of industry and attention and a little time to spare, should make a fair trial of the pursuit; and what we do promise to all who enter the pursuit with spirit is that they will find attractions to fascinate, make discoveries that will cause wonder, have their habits of observation cultivated and quickened, find scope for invention, ingenuity, and fertility of resource; and all these combined with the material gain that adds to the attractions of the table and the weight of the pocket.

HISTORY OF THE ART.

Our limits forbid us to do more than state the fact that the ancients are known to have kept bees in a domesticated state more than two thousand years ago, and that probably much in the same fashion as is common in eastern countries to this day. Hives were made out of hollowed logs, or, where timber was scarce, of cylinders of clay or of wickerwork plastered with clay. Such hives are still used in the East, where it never has been the practice to kill the bees in order to get their honey. These logs or cylinders are placed in a horizontal position, and the honey taken at certain seasons from the end most distant from the entrance. The natural tendency of bees to store their surplus at a distance from the entrance is thus taken advantage of. In the Russian log hives another advance is made, based on the tendency of the bees to store above as well as beyond the brood nest. The hives are raised a little at the back, and thus the certainty of finding virgin comb at the further end is increased. There is evidence in ancient chronicles and among the laws of our Anglo-Saxon forefathers that bees were at one time altogether wild in this country. Previous to the eighth century they were classed with foxes and others as incapable of private ownership. Whoever found them in the woods was entitled to their honey and wax. The honey was highly esteemed as an article of food, and was largely

used in brewing mead and in medicine. The wax was in great demand by the clergy, who taught that bees had been sent from heaven because the mass could not be celebrated without wax, and under their influence they were gradually domesticated, being kept in hollow logs or hives of bark (Lat., *Rusca*). Hence a hive of bees was called a "rusca" of bees, a word surviving to this day as a name for a straw skep. As bees now came to be looked on as property, the law recognised the right to a wild swarm as belonging to the person on whose land it had settled for three consecutive nights. If he failed to discover it within that time the finder had a right to 4d., and if that sum were not paid he might claim the swarm. At that time a rusca of domesticated bees was valued at 24d.

Under the stimulus of a demand for honey and wax we find great lords, about the middle of the tenth century, having *beo ceorls* specially detached to attend on the bees, and the slaves gradually becoming serfs who paid their feudal lord a fixed amount of the produce of their hives. About this time also the name "rusca" often gives place to the Anglo-Saxon word *beo cist* (bee chest), or the Latin word *alvearia*, which marks an advance from mere shells of bark to more regular hives. Domesday Book mentions them repeatedly, and they were even tithed as valuable property.

Comparatively little progress was made in bee-keeping until the close of the last century, when the discoveries of Francis Huber afforded the ground for a great advance. Previous to this, the natural history of the bees, and especially of the queen, was very imperfectly understood. Huber was the first to announce the true nature of the three classes of bees found in a hive—the queen, workers, and drones. The German Shiraeh and the Scottish Bonner discovered the method of causing bees to rear queens at pleasure. At a later date Dr. Dzierzon and Baron Berlepsch established the fact of the parthenogenesis of queens—that is, of the power they have of producing male progeny while still in a virgin state. They also proved that queens mate in the open air, and that within from two to twenty or thirty days of their birth. The impetus thus given to bee-keeping was followed, as has already been mentioned, by those welcome mechanical aids, the bar-frame hive, comb foundation, &c., which have brought bee-keeping to the position of a science. This sketch would be imperfect without at least a mention of those agencies of the present time for the diffusion of knowledge in bee matters—viz., bee journals and associations. These are now established in Germany, Italy, France, Switzerland, America, and England. In England nearly every county has its association, and Scotland and Ireland have several, most of these being affiliated with the great central association of British bee-keepers, whose head-quarters are in London. Simultaneously with the establishment of associations have come those interesting and instructive exhibitions of honey and appliances, now the order of the day, by a visit to which a beginner will learn more in an hour than he could formerly have done by reading and practice for a season. As a result of this revival of neglected industry, honey and honeycomb are fast becoming articles of regular commerce, and no difficulty is found of disposing of them at remunerative prices. It is still to be desired that the remnants of the ancient and cruel system of destroying the bees to get their honey should be rooted out of many places where they still prevail. The better way, however, makes such rapid progress, that within a few years the brimstone pit may reasonably be expected to become a thing of the past, and the more cleanly and convenient products of the modern system take the place of the doubtful mixtures of honey, brood, and pollen, so often inseparable under old methods of routine.—WILLIAM RAITT, *Blairgowrie*.

(To be continued.)

BEEES, BEE APPLIANCES, AND HONEY AT THE DAIRY SHOW.

JUDGES' REPORT.

THE unfavourable weather that prevailed in June and July, the two months during which the bee-keeper usually gathers the great bulk of his harvest, has this year told sadly against the supply of honey, so that the classes for sections and honey in jars was not so well filled as on former occasions. The quality, however, was good, and the interest of the public in the bee department generally was remarkable, large numbers visiting this part of the Show every day, and making careful inquiries of the Assistant Secretary, who was daily in attendance.

There was a good competition for the best bar-frame hives not exceeding 15s. and 10s. 6d. in price. The first prize in the former class was awarded to the Standard Reversible Hive, exhibited by Mr. Blake of Dallinghoe, Suffolk, and is certainly cheap at the price. This hive is divided into two compartments. The front compartment contains ten frames of the standard size, which are reversible. There are two moveable sides or dummies. The partition is a fixed frame, 1½ inch thick in the centre, on which is suspended a bar-frame, started with

comb foundation, with a quarter of an inch clear space all round, the queen and drones being excluded by perforated zinc on the inner side. The back compartment contains two suspended crates of sections $4\frac{1}{2}$ by $4\frac{1}{2}$ inches, which are interchangeable, with the standard frames in the front, and also one dummy board. The outer walls of the hive are double, with 1 inch dead air space between. The hive stands on stout legs, is filled with entrance shades and carpet, and there is a spacious roof for supering.

Dr. Benthall's second-prize hive in this class is also worthy of notice. It is intended particularly for obtaining section honey at the sides of, and in the same direction, as the brood combs. The sections are placed in summer in the air space at the sides of the hive, and are enclosed, in accordance with a plan well known in America, by sides moving on hinges. The inner wall of the hive is perforated, the perforations being fitted with zinc, which admits the worker bees only. A shutter is placed against this in winter, and the space filled with chaff. The floorboard and ends of the hive are lined with half-inch linoleum, made specially for the purpose.

In the class for the best hive not exceeding 10s. 6d. in price the silver medal was awarded to Mr. Blake for his British Standard Cottagers' Hive. This hive has a single wall, made of 1-inch deal, and contains ten frames of the British standard size, a roof with ample room for supering, a crate of fourteen 1-lb. sections fitted with entrance slides, two division boards and carpet, together with a floorboard.

The first-prize observatory hive, exhibited by Mr. Gibbons of Hungerford, was an ordinary Standard bar-frame, with a moveable top provided with slits, in which any frame can be lifted up for observation. The moveable top is arranged so that it can be brought just over any frame.

Mr. Neighbour exhibited an extensive and excellent assortment of bee appliances.

All the sections and honey offered for sale were purchased at good prices, and it is evident that there is an opening for a largely increased supply of honey in an attractive and marketable form.

EDWARD BARTRUM,
GEORGE RAYNOR,
JOHN N. HOOKER,
HENRY BLIGH.

ANTS AND BEES.—Sir John Lubbock read an interesting paper on his favourite study, the Habits of Insects, at a recent meeting of the Linnean Society. He mentioned that he had queen ants which had lived with him since 1874. They are now, therefore, no less than eight years old, and they had eggs last summer as usual. His oldest workers are seven years old. Alluding to the industry of bees, he gave particulars of an experiment by which he ascertained that the wasp for which he had provided honey began work at four o'clock in the morning, and went on without any rest or intermission till a quarter to eight in the evening, during which time she paid Sir John 116 visits.

TRADE CATALOGUES RECEIVED.

Kelway & Son, Langport, Somerset.—*Catalogue of Gladioli.*
George Cooling & Son, Broad Street, Bath.—*Catalogue of Roses, Fruit Trees, and Shrubs.*
William Etherington, Manor House, Swanscombe, Kent.—*List of Chrysanthemums.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

The Fruit Manual (*Clivius*).—The new edition of the "Fruit Manual" is now in progress, and is expected to be published next spring. It will be very much enlarged, and consequently the preparation of it involves a great amount of labour.

Heating Greenhouse (*J. C. C.*).—If the house is a lean-to two rows of 4-inch pipes—a flow and return—along the front and across one end will be sufficient. If it is a span-roof the pipes should be taken all round the house. Three-inch pipes would exclude frost, but the larger size would enable a genial temperature to be maintained without hard firing.

Cucumbers (*Vectis*).—We do not think it would be of any use your applying to the grower you name, as he does not sell seed nor is he likely to aid in the distribution of the variety he has selected. Nor is that variety exclusively adapted to the system of culture alluded to. Any prolific variety is suitable—the Cardiff Castle, for instance, raised by Mr. Pettigrew in the gardens of the Marquis of Bute. The raiser would, no doubt, inform you to whom he has supplied seed for distribution.

Epiphyllums (*A. M.*).—The plants may be kept moderately dry at the roots, but not to cause the fleshy stems to shrivel. They may be placed in heat at any time now, and kept moist according to the period when they are required to flower. They are very beautiful when well grown, and may be had in beauty from the present time to Easter if a cool stove is provided for advancing their growth during the winter. A temperature ranging from 45° to 60° is suitable for them throughout the winter.

Gros Colman and White Lady Downe's Grapes (*J. H. W.*).—The former is a strong-growing and productive Grape, with good-sized bunches and very large berries of good quality if grown in a warm house. If you can afford lateral space of 5 feet for the Vine you may include it in your collection. The white Lady Downe's is too uncertain for being included in a small collection. Try a Vine of Alnwick Seedling, and if you can set the fruit (which you will probably succeed in doing) it will give you satisfaction. We will publish your note relative to the destruction of ants, in case any of our readers who may have been successful in extirpating them will state their methods for the benefit of you and others who are annoyed by these troublesome insects.

Nitrate of Soda (*S. Henry*).—As you ask how much nitrate of soda you should use per acre we presume you require it for farm crops. Farmers find about 3 cwt. per acre a sufficient application to Wheat and cereal crops. The best time for applying it is in the spring. If used too liberally, and to crops already full and in good soil, it is apt to induce a too luxuriant growth of straw. If applied to vegetable crops in gardens about 3 ozs. per square yard is sufficient, and may be applied about once or twice during the early season of growth. For using as liquid manure from a quarter to half an ounce to a gallon of water is ample, but should not be used until the pots are filled with roots and the plants require more support than the soil affords them, nor should it be applied to garden or farm crops of any kind at this season of the year.

Carbolic Acid v. Weeds (*Idem*).—Mr. Luckhurst, who has had much experience in destroying weeds in the manner suggested, has stated in our columns that half a pint of the acid diluted with a gallon of water destroys strong weeds of two or three years' growth, and a third less acid to the same quantity of water is sufficiently powerful for small weeds. The water is first placed in a garden can with a fine rose, the acid measured and poured into it. No stirring or further mixing is requisite, but it is immediately poured over the weeds through the rose, care being taken to make the entire surface of the path wet in order to destroy the weeds. A gallon of water with the acid will do 9 square yards of path. This will enable anyone to make a clear computation of the quantity of acid required to do a given area. Care must be taken not to let the acid touch the hands, clothes, or boots. You had better not use the acid for destroying weeds on land that has to be afterwards cropped, as sufficient to kill the weeds would also prevent the growth of the crops you might desire to cultivate.

Grevillea robusta (*Idem*).—You have done right in cutting the plants down in preference to simply removing the leaves; but we have a doubt if either process was necessary. It is not at all unusual for the tops of the plants to appear as if "almost frosted," and we do not think there has been frost in your district severe enough to injure these plants under glass this autumn. They are quite safe where the temperature is not below 40°, but 45° is preferable for keeping the plants healthy.

Cellini Apple (*Disappointed*).—Although you have been as you say "deceived" with this Apple, it is nevertheless a very useful variety. There are very few Apples that succeed alike well in all soils and localities. In one garden we have failed entirely in attempts to grow the Hawthornden, in another it was in every way satisfactory. We know a very large garden where Cellini refuses to grow; but on that account we should not be justified in condemning it, seeing that we are acquainted with a hundred other gardens where it flourishes admirably and bears heavy crops of handsome fruit.

Veronica salicifolia alba (*D. E., Bradford*).—Although this plant has occasionally survived the winter in favourable positions, it cannot be regarded as hardy, and you had better take up such of your plants as you wish to preserve, pot them, and winter in a frost-proof pit or greenhouse. Small bushy plants established in pots are valuable for decorative purpose in the autumn and early winter months, their slender sprays being very elegant both on the plants and cut and arranged in vases.

Climbers for a Conservatory (*Rugby*).—You do not state how many kinds or how many plants are required, nor whether you have a large or a small house, the space at command being of much importance in making a selection, as some very strong-growing kinds, though useful in a large house, would be quite unsuitable for a small one. We can, therefore, only give you an approximate reply, and your choice must be regulated by the dimensions of the house and the number of plants required. The following are six strong-growing sorts:—*Tacsonia Van-Volxemi*, *Bougainvillea glabra*, *Passiflora recemosa caerulea*, *Lonicera sempervirens*, *Cobaea scandens*, and *Bignonia speciosa*. The following are good climbers of moderate growth, the six first being the dwarfest or slowest growing:—*Lapageria rosea* and *alba*, *Hardenbergia monophylla*, *Swainsonia Osborni*, *Rhodochiton volubile*, *Solanum jasminoides*, *Mandevilla suavcolens*, *Plumbago capensis*, *Rhynchospermum jasminoides*, *Jasminum grandiflorum*, *Kennedyia Marryattae*, *Habrothamnus elegans*, *Cestrum aurantiacum*, *Tecoma capensis*, with the following added if the above are not sufficient:—*Bomarea Carderi*, *Sollya heterophylla*, *Hibbertia dentata*, *Clematis indivisa lobata*, *Berberidopsis corallina*, and *Akebia quinata*. For growing in pots *Convolvulus mauritanicus*, *Tropaeolum azureum* and *Jarrattii*, *Othonna crassifolia*, *Fragaria indica*, *Pratia littoralis*, *Saxifraga sarmentosa*, with the *Clematis* and *Hibbertia* named above, would be suitable.

Cinerarias (*G. W. L.*).—It is not necessary to stop the central growths of Cinerarias, provided the plants are grown in a cool temperature, the root-action active and the growth of the plants free, as under these conditions the plants branch naturally and form fine heads. The many thousands that are grown so well for Covent Garden Market are never stopped; but occasionally when the plants are drawn unduly in a young state, or where dwarf flat specimens are needed for any particular purpose, the central growth is pinched out. This, however, is exceptional, the rule being as we have stated. The non-flowering of your plants was due to defective root-action, but whether caused by excessive wet, drought, or poverty of soil we have no data for determining. Fowl dung makes very stimulating liquid manure. Mix a peck with 40 gallons

of water, and when clear use it in a diluted state, adding more or less water according to the plants and their condition to which it is applied. It is stronger than soot water.

The Purple-leaved Birch (*A Nurseryman*).—You are right. It was raised in America, and its discovery was described by M. Ed. André in *L'Illustration Horticole*. "On the 5th of June, 1872," writes M. André, "whilst going through the horticultural exhibition at Orleans as one of the party of judges, the attention of myself and of my companions was drawn to a number of shrubs consisting of forty plants all of one species, which were almost hidden in the recess of a somewhat darksome corner. It required but a moment's contemplation to enable us to grasp the full importance of the remarkable plant, which was, without doubt, the chief object of interest in the exhibition. It was a very beautiful variety of the common white Birch (*Betula alba*), but the leaves were completely purple or purple-black, like those specimens of the Beech so often seen in our parks. Here was indeed a real discovery, and a golden medal was with one accord awarded to it. It was obtained by chance by an old hand of the firm of Transon Brothers, named Duhois, from a sowing of the ordinary Birch. He very soon observed the unaccustomed appearance of the plant, and after having raised it he took grafts therefrom, and placed them on young stocks of the common variety, and afterwards established them in pots. It will be a great acquisition for our parks, and may be most advantageously associated with the Purple Beeches, the habit of which is quite different. It succeeds in the poorest soils, at the same time preserving all the strength and rural beauty of the original type."

Hanging Rats (*G. Burton*).—After some trouble we think we have found what you require. This method of catching rats was described by Mr. Graves as follows:—The trap consists of a hooked stick (fig. 1), a piece of straight stick about 4 inches long, with one end chisel-pointed and a slit in the other end, and a hender, or rod, about 4 feet long, not too stiff. A piece of string is tied to one end of the bender, and a piece of fine wire with a noose is attached to the string and made fast to the chisel-pointed stick about an inch from the slit end. To set the trap the hooked stick is driven firmly into the ground about 9 inches from the rats' run or hole, and the bender is driven into the ground about 3 feet from it on the same side of the run or hole. The hender is then drawn down to the hooked stick, and the chisel-pointed stick is put under the hook and fixed in the notch, as shown in fig. 2. The wire snare is put in the

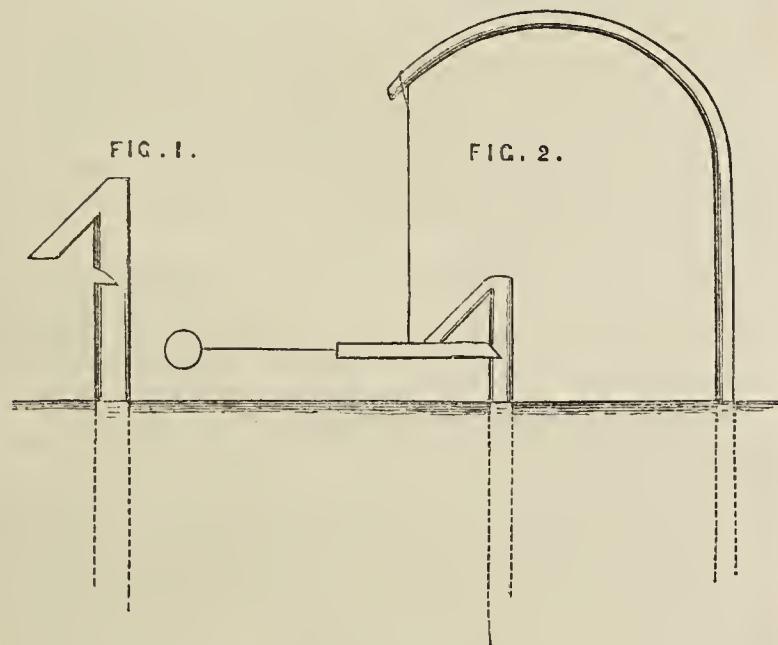


Fig. 73.

slit and adjusted in the run about 1 inch from the ground. There may be several traps set on the same run. Fig. 2 shows the trap when set. When the rat is caught he pulls the stick out of the hook and is immediately suspended in the air, and is soon dead and out of the way of the next comer, which passes on to the next trap, and is very soon suspended likewise. There is no fear of catching game, poultry, or cats in such traps, as is the case with iron ones.

Names of Fruit (*J. M., Barton-on-Humber*).—We are unable to identify the Apple you have sent, which is evidently a good culinary variety. It is probably one of the many local varieties which have been raised from seed so freely in North Lincolnshire and South Yorkshire.

Names of Plants (*D. T.*).—1, *Cestrum aurantiacum*; 2, *Clematis viticella*; 3, *Physalis Alkekengi*. (*O. W. D.*).—The white flower is *Chrysanthemum maximum*; the leaf we do not recognise, and cannot determine its name without flowers as well. (*W. J.*).—1, *Æschynanthus longiflorus*; 2, *Selaginella Wildenowii*; 3, *Doryopteris palmata*; 4, *Platyloma cordata*. The Ferns have been extremely well grown, the fronds being firm and healthy. The price of the work on British Ferns is 3s. 6d., post free 3s. 9d. The "Vegetable Kingdom" is out of print, and cannot be supplied; you might perhaps obtain a copy second-hand. Stamps or post-office orders should be sent to the publisher. (*W. E. B.*).—Your plant is a *Gesneria*, and it closely resembles that described on page 337 of this Journal as *Jeannot*.

Bee-keeping (*Odyssus*).—1, A bee-house is by no means indispensable; most advanced bee-keepers prefer hives on separate stands, as being more easy of manipulation and affording other advantages over houses. 2, We consider the autumn the best time to purchase, as the cottagers will then sell their hives at about their honey value, in preference to burning the bees. At spring they object to part with them, having generally reserved two or three colonies only to keep up their stock. A strong colony in March is worth at least 20s. in a straw skep. 3, Moveable-comb hives are now supplied by the chief hive-makers at prices so low that we advise you to purchase at least one as a pattern, in preference to constructing one yourself. The prize hives at South Kensington and the Dairy Shows, manufactured by Messrs. Dines of Maldon, Essex, and Mr. Blake of Dallinghoe, Suffolk, with roof, stand, and crate of sections for surplus honey-comb, well made from sound material, are being supplied in large numbers at

10s. 6d. each. A good frame hive without stand can be obtained for 7s. 6d. You would do well to purchase a colony in a straw skep, and allow it to swarm, when you can place the swarm in a bar-frame hive previously procured. If failing to purchase a stock swarms may always be obtained of cottagers on the day of swarming at 10s. each in May and June, and these may be placed in any hive you please.

COVENT GARDEN MARKET.—NOVEMBER 8TH.

OUR Apple market is now considerably depressed owing to American importations reaching us, superior sorts alone maintaining quotations. English Pines are in demand, and Kent Cobs selling freely at previous rates. Grapes in excess of demand.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 0 to 7 0	Lemons.....	case 20	0 to 30 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	2 0 3 0
Cherries.....	½ sieve	0 0 0 0	Nectarines..	dozen	0 0 0 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	100	6 0 10 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen ..	dozen	1 0 2 0
Figs.....	dozen	0 6 1 0	dessert.....	dozen	1 0 2 0
Filberts.....	lb.	0 6 0 0	Pine Apples, English	lb.	4 0 6 0
Cobs.....	100 lb.	0 0 45 0	Raspberries.....	lb.	0 0 0 0
Gooseberries....	½ sieve	0 0 0 0	Strawberries....	lb.	0 0 0 0
Grapes.....	lb.	1 0 3 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Lettuces.....	score	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mushrooms.....	punnet	1 0 1 6
Beans, Kidney....	100	1 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beet, Red.....	dozen	1 0 2 0	Onions.....	bch.	0 6 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	1 6 2 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 10 0 0
Capsicums.....	100	1 6 2 0	Potatoes.....	cwt.	6 0 7 0
Carrots.....	bunch	0 4 0 0	" Kidney.....	cwt.	6 0 8 0
Cauliflowers.....	dozen	2 0 3 0	Radishes....	doz. bunches	1 0 0 6
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzonera.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	lb.	0 3 0 4
Garlic.....	lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Tomatoes.....	lb.	0 3 0 6
Leeks.....	bunch	0 3 0 4	Turnips.....	bunch	0 2 0 4



POULTRY AND PIGEON CHRONICLE.

NEGLECTED PASTURES AND WASTE LANDS.

(Continued from page 417.)

NEGLECTED grass land may also be improved and renovated under one operation—that of paring and burning the old turf, which will clear away many weeds and objectionable grasses, rushes, and hassoc tufts. After this is completed the land will be free to receive new seeds without any cultivation or labour at all except that of sowing the seeds. As fast as the seeds are sown the ashes should be carted from the heaps and spread from the carts, so that the seeds may be covered about 2 inches deep, which will insure germination directly if sufficient moisture is contained in the soil, for it should be understood that the work of paring, turning, seeding, and spreading the ashes should be done during the three months of March, April, and May. It is considered that the paring and turning, utilising the ashes, &c., cost some £3 or £4 per acre, according to the soil and the weather during the work required. Yet our experience in this matter enables us to estimate the ashes to be of far more value as manure than the cost of paring and burning, irrespective of the advantages to be derived from the method pursued of seeding and the certainty of its growth. Besides, we have known various instances in which the roots of some of the most permanent grasses from the old turf will shoot up again, and greatly assist in the formation of the new turf in conjunction with the newly sown seeds, more particularly as the heavy dressing of ashes is one of the most valuable dressings, as proved by the chemical contents that can be used for raising a new turf.

The seeds which we advise being sown are exclusively of per-

manent grasses, and such as may be sown with the full promise of success in the formation of a first-class permanent pasture upon any soil suitable in other respects for the production of a turf, and are as follows:—Cocksfoot (*Dactylis glomerata*), Meadow Fescue (*Festuca pratensis*) and its ally Tall Fescue (*Festuca elatior*), Catstail or Timothy (*Phleum pratense*), and Meadow Foxtail (*Alopecurus pratensis*). These five grasses should form the bulk of all pastures on nearly every soil as furnishing food for sheep or cattle. The Clovers to be used in smaller quantities or proportions than the grasses are permanent Red Clover, Alsike or Yellow Suckling, and permanent White or Dutch Clover. We must not, however, forget that upon all dry soils intended for sheep walk or park lands seeds of Milfoil or Yarrow (*Achillea millefolium*) ought never to be omitted. The above-named are really all the plants required for a permanent pasture of the highest feeding value and quality on first-rate or medium soils in nearly all parts of the kingdom. On inferior soils, however, these grasses may not all of them be suitable, and a selection must be made. Thus on most strong cold soils Foxtail rough meadow grass may be used, and some of the finer grasses should be omitted and a smaller quantity of Meadow Fescue and Tall Fescue used, while a greater proportion of Cocksfoot should be substituted. Before saying more we must state that it is a common thing, as recommended by the seedsmen, to use a certain portion of the seeds of perennial, biennial, and annual grasses. The two latter, however, if not all three of them, ought in our opinion under ordinary circumstances to be carefully excluded when a permanent pasture is desired, for reasons which we have previously stated.

With reference to quantities of seed, we recommend per acre is as follows:—Cocksfoot, 8 lbs.; Meadow Fescue, Tall Fescue, Timothy, and Meadow Foxtail, of each 5 lbs.; Red Clover, 3 lbs.; Yellow Suckling, 3 lbs.; White Dutch, 6 lbs. Upon dry land for park purposes and sheep walk we would leave out the Red Clover and substitute 3 lbs. of Yarrow. The total will be 40 lbs. per acre, and by no means an excessive or expensive seeding in any season, because none of the sorts recommended will die away if properly cared for and manured every year. There is, however, one point to be considered—that in the absence of chalk on good loams, marl on light and gravel soils, lime on very strong soils, and sand or gravel on peaty soils, none of our best grasses however manured can be made permanent and really productive, for when these items are absent the real and true bases of valuable pasture are wanting.

We must now make some reference to the various modes of manuring, as well as the substances at our command and their mode of application—whether by the means of direct manuring or by the consumption of cake, &c., by sheep and cattle. It is well known that in the majority of grazing farms in Cheshire the direct application of bones and bone ashes have been most successful; but upon inquiry as to the nature of the soils, it is ascertained that these clay soil pastures contain upon analysis a large amount of potash—one of the chief ingredients required in the successful formation of permanent pasture, but a more or less absence of lime. At the same time there appears to have been in other districts a constant inquiry why bones should not have the same effect on pasture land of a similar nature, as well as in Cheshire. The correct answer to this is, that wherever there is present in the soil a large or sufficient amount of carbonate of lime, in whatever form or mixture with soils it may be found, bone earth is of but little use, that also on clay soils potash may be wanting. Upon ascertaining this by analysis, farmyard manure, as well as the German kainit containing potash, should be applied in connection with bone manures where grazing of cattle and sheep has been constantly carried out; for this removes, but especially by dairy cows, a large amount annually of carbonate of lime and bone earth. It is from this circumstance that the fattening of cattle or grazing by dairy stock eating cotton or linseed cake is advised, not only for the sake of fattening the animals, but that the pastures should benefit by the manurial residue of the fattening substances, all of which being stated in the tables presented as estimated by Sir J. B. Lawes and printed in the Journal of the Royal Agricultural Society of England.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Much of the horse labour on the home farm has been seriously delayed or stopped entirely upon the land intended for Wheat. Fallow-ploughing for the land to lie the winter, however, has been possible on the driest and chalk-hill soils, as well as the gravel and sandy lands, but upon strong soils and flat-lying tenacious clays no advantage has been obtained by ploughing them, although they may be required to remain untouched during the winter months. The home farmer should remember that there is much to be done rather than allow the horses to remain idle when work cannot be

done upon the land. It is important that all parts of the farm premises, including the rickyards and various corners of the premises, will be sure to bear grass and weeds of various kinds; and in order to keep up a cleanly and neat appearance, so much valued by many gentlemen who have farms in their occupation, the horses and carts should be employed in carting away all these refuse matters, which may have been shovelled together by labourers employed for the purpose. The benefit to be derived from this work at odd times not only consists of keeping the premises in decent appearance, but that the materials of various kinds in earthy and vegetable substances which may be heaped will be decaying and forming a useful basis for many purposes, but especially for the use in connection with dung and chalk for making composts suitable for improving pastures. It is to be noted that any roadside earth, or that which can be obtained from banks and borders in the fields, should be carted together at odd times and formed into a conical heap, so that it may be covered or rough-thatched with hedge-trimming, sedge, and similar materials, in order that it may be kept dry for the purpose of making bottoms or floors for removal in all the pig pens, cattle pens, and boxes, including the stalls for dairy cows as well as for the cart-horse stables. This earth after being in heap for nine or ten months will prove mellow and may be picked down, taking a portion of the heap as may be required. We make these heaps about 12 feet wide at the bottom and draw upon them to tip the materials, except the portion at the top, which will be cast into form for the purpose of keeping the main portion of the earth heap dry and fit for use when required, thus giving it an absolute power suitable for the above-named purposes. Large quantities of earth may thus be obtained, and the heap when extended lengthways may be reduced as required without at all disturbing any portion of the heap which may have been recently put together. We have for many years used earthy compounds for the purposes named, as much as from 150 to 200 cartloads in a year, according to the extent of the farm. This practice not only serves to fill up the odd time for horses which would be otherwise idle, but it also furnishes an enormous amount of manure, much of which would often be lost altogether; at the same time it tends greatly to the health and cleanly appearance of all the cattle when properly carried out, and which has been described by us at different times during the past five years in this Journal under separate headings, where the management of cattle in all its detail has been minutely described as carried out in our own practice.

Hand Labour.—The late flooding rains will have made it quite necessary for the water meadows to have been carefully attended to by the drovers and labourers employed. The cutting of underwood in the coppices and in the hedgerows, as well as the cutting of Ash and Elm timber, will have been going on. Planting young trees also should now be done, for the purpose of growth of Larch and Chestnut trees for hop-poles in the future.

Live Stock.—The shepherd will have now the double care of attending the sheep, whether of ewes, hoggets, or wethers, and endeavour to keep them healthy by feeding on the driest land, also to avoid the dirt on some soils. All the food, whether of roots, cake, or hay, should be given in troughs, to avoid waste, and by carefully feeding and filling the troughs with as much, and no more, food than the animals will eat before leaving the troughs great economy and avoidance of waste will be the beneficial result. In letters published lately in the *Times* newspaper, the question of "ensilage" has been brought to the farmers' notice. This is neither more or less than a plan for preserving green fodder, such as Vetches, Trifolium, grass, and Clovers in "silo," which is a pit or tank formed for the purpose of receiving these green substances to be preserved for the feeding of cattle in the winter and spring months. This is not altogether a new practice, but it is fast coming to the front, and the home farmers may live and learn, for many have yet to be taught the best way of saving grass and other green crops. We have not tried it, but there is much to be said, and has lately been said, of the plan, and that is worth a trial at any rate at the time of year, say the month of May and other summer months. It is recommended to cut your green fodder and bring it home immediately, cut it at once into the smallest pieces you can, and cast it into a pit, or silo as it is called; press it down closely so as to keep out the air, and cover it quite securely with earth or other heavy substances, and in a few months we are told that you will be able to cut it like cheese, and that your cattle will like it and thrive upon it. We are informed that this has been a practice on a farm in France a short distance from Paris by Vicomte Arthur de Chezclles, who puts into one pit the produce of 170 acres, and cuts it out for his cattle when wanted. They are said to enjoy it, and, according to their respective destinations, fatten or give milk upon it admirably. We hope to refer to the subject again more fully and in detail.

POULTRY AND PIGEONS

SPOILING THE DORKING.—No. 2.

I WAS certainly taken by surprise on finding that the Poultry Club are about to publish the points of excellence in poultry; still

for all that I do not see any reason why I should not finish my Dorking notes, as I am totally ignorant of any decision they may have arrived at with regard to this ancient breed, and therefore what I say cannot in any way be considered as written with any antagonistic feeling as regards the Poultry Club. Nor do I mean to be personal to anyone, and therefore I refrain from mentioning any names. I wish it clearly to be understood that I write only in the interest of the Dorking fowl.

In my last I confined my remarks to the Dark Dorking; but now I wish to point out that the White Dorking has been tampered with almost, if not quite, to the same extent as the old coloured variety. It is quite apparent, and has been for some time, that the White Cochins has been used to get size, as may be observed to the most uninitiated eye; the looseness of feathering, the cushion on the back and general carriage, also the red earlobe, has appeared, whereas there never was such a thing in true White Dorkings; also I have seen slightly tinted legs, and at the last Tonbridge Wells Show one hen was shown with a decidedly blue tendency on the shank bones. As an excellent Dorking fancier remarked to me, looking at the bird, "Where will it all end? Is the prize for a Dorking or a crossbred?" I could but refer him to the schedule. The prize was for a "White Dorking." Was the bird before us one? Certainly it was not like the White Dorking I and many others kept years ago, neither in compactness, smallness of bone, colour of earlobe, colour of legs, nor carriage.

To me it seems a little odd that the Dorking should be so entirely altered, and to my mind for the worse; and yet those who have helped to spoil it have maintained all through the fifth toe, which so many writers have stated was so difficult to keep true, though I never had any difficulty, the true breed never throwing four-toed birds. I say it does seem a little odd that the fifth toe has been kept, as it has been so much abused also, even to the nonsensical statement that it was the cause of the bumble foot. For my part I have always found the fifth toe one of the least difficult points to maintain, and it is entirely owing to the aptitude to breed a fifth toe that the various crosses have been made, and a mongrel fostered on the fancier of to-day, many of whom cannot remember the fair-fleshed small-boned fowl of forty years ago, but take for granted the coarse flesh and large bones of the now show Dorking as being the genuine.

Broadly it may be stated that all the European varieties of fowl have *white earlobes*, and all the Asiatic *red earlobes*, and if the former have red earlobes it is conclusive to my mind that there is a cross.

Now take the Black Hamburgh with its white earlobes, cross it with an Asiatic, and so breed back to get size. I wonder whether the judges would alter the standard to suit the cross, and say henceforth the Black Hamburgh shall have a red earlobe. I feel sure they would not, and yet that is what they want to do with the truly unfortunate Dorking. Poultry shows must be very useful institutions, and the judges wise when they unite for the purpose of laying down a fresh standard of excellence, because the original breed has become so muddled by crossing and crossing that many if not nearly all the original is lost, and this by their either want of capacity to distinguish the true, or an utter indifference to the real merits of the breed. The classes at the shows were formerly for Coloured Dorkings; then any colour could compete, and the fowls were judged by their table qualities, smallness of bone, white and fine texture of flesh, and general plumpness of form, and the old breed being tight and close in feather, and having such well-rounded breasts, never looked the birds they were. Their excellence was to be felt as much as, or even more than, seen.

In the schedule of a poultry show issued more than forty years ago occurs the following:—"The fowls should be plump, deep, long, and capacious in body, with short white legs, of small-sized bones, of very white, juicy, fine-grained flesh, the fat and skin equally white, and of delicate flavour."

Now, I put it to any Dorking fancier of the present day, Is the foregoing a description of the now so-called Dorking? I say most emphatically, It is not; but it is that of the true old English Dorking of the past, and everyone who knew and kept the true old sort will say it is right word for word. Truly our poultry judges and poultry shows have done us good service in this case.—HARRISON WEIR.

THE NEW STANDARD OF EXCELLENCE.

IN accordance with my promise I enclose herewith draft Standards of Dorkings, Game, and the French breeds.

I shall have much pleasure in submitting any comments which reach me on or before Monday next to the meeting of fanciers to be held on Tuesday at the Crystal Palace.

The particular places of meeting I shall endeavour to have clearly indicated by a notice on the first pen of each breed. The hours will be as follows:—Brahmas, 12 noon; Game, 12.30 P.M.; Dorkings, 1 P.M.; Cochins, 1.30 P.M.; French, 2 P.M.

The General Annual Meeting of the Club will as usual be held at 3.30 P.M. on the same day (Tuesday).

All interested are invited to attend the meetings.—ALEXANDER COMYNS, *Hon. Sec.*, 47, Chancery Lane, London, W.C.

DORKINGS.

GENERAL CHARACTERISTICS.—COCK.

Beak.—Stout.

Comb.—Either single or rose in Coloured, single in Silver-Greys, rose in White or Cuckoo Dorkings. (If single) Upright, thick, well and firmly set on the head, evenly serrated and free from sprigs at the side; outline semicircular from beak to back of the head; texture fine. (If rose) Moderate in size, firmly set on head, evenly spiked, square in front with no hollow in centre, and a good spike at back.

Head.—Large.

Eye.—Full and bright.

Wattles.—Long and pendulous.

Neck.—Thick, rather short, with full hackle.

Breast.—Full and prominent, with long breast bone.

Body.—Large, deep, and square.

Back.—Broad, rather long, flat at shoulders, rounding slightly towards the tail.

Wings.—Large and carried well up.

Tail.—Large and flowing, carried moderately high, but not in squirrel fashion.

Sickle Feathers.—Long, broad, and well arched.

Tail Coverts.—Large and full.

Thighs.—Thick and stout, well hidden by feathers.

Legs.—Short and strong with the spurs set inside.

Feet.—Large and broad with five toes, the fifth turning upwards, the rest straight.

General Shape and Carriage.—Massive and square shape, with proud and bold carriage.

GENERAL CHARACTERISTICS.—HEN.

Beak.—Stout.

Comb.—Either single or rose in Coloured, single in Silver-Grey, rose in White or Cuckoo Dorkings. (If single) Large, falling on one side of head. (If rose) Neat, firmly set on the head, evenly spiked, with no hollow in centre, and a straight spike at the back.

Wattles.—Moderate in size and neatly rounded.

Head.—Large, but not coarse.

Eye.—Full and of soft expression.

Neck.—Thick and of moderate length.

Breast.—Full and round with long breast bone.

Body.—Large, deep, and square.

Back.—Broad and flat.

Wings.—Large and carried well up.

Tail.—Broad and full, carried neither too upright nor straight.

Thighs.—Thick and stout, well hidden by feathers.

Legs.—Short and stout; [spurs, if any, inside].

Feet.—Large and broad with five toes, the fifth turning upwards, the rest straight.

General Shape and Carriage.—Massive and square.

POINTS OF COLOUR IN COLOURED DORKINGS.—COCK.

Head.—White or white striped with black.

Neck Hackle.—White striped with black or steel grey to match saddle (?).

Comb and Face.—Red.

Earlobes.—Red preferred, white admissible.

Beak.—Horn colour.

Eye.—Orange.

Wattles.—Red.

Breast.—Black, or black slightly ticked with white.

Underpart of Body and Thighs.—Black.

Back and Shoulder Coverts and Saddle.—White, with black markings or steel grey.

Wing Bow.—Black and white mixed. *Coverts.*—Metallic black.

Primaries.—Black. *Secondaries.*—White, or nearly so.

Tail and Sickle Feathers.—Black, or black with a little white, the former preferred.

Tail Coverts.—Black or grey.

Legs.—White.

POINTS OF COLOUR IN COLOURED DORKINGS.—HEN.

Head.—Dark on top, lighter round base of bill.

Comb.—Bright red.

Face.—Red.

Earlobe.—Red preferred, white admissible.

Wattles.—Red.

Beak.—Horn colour.

Eye.—Orange.

Neck.—Black, dark, or with dark stripes on lighter ground.

Breast.—Moderately light to dark brown, in some cases salmon colour, deeper under throat; in others, neatly spangled with black.

Back and Shoulder Coverts.—Dark, with white line down shaft of each feather.

Wing Bow.—Ditto, and free from red.

Coverts and Flights.—Ditto, or black.

Tail.—Black or dark brown.

Thighs.—Dark.

Legs and Feet.—White.

POINTS OF COLOUR IN SILVER-GREY DORKINGS.—COCK.

Head.—Silvery white.

Hackle.—Pure silvery white, as free from stripes as possible.

Comb, Face, Earlobes, and Wattles.—Bright coral red.

Beak.—Horn or white.

Eye.—Orange.

Breast.—Glossy black.

Thighs and Underparts.—Black.

Back.—Pure silvery white.

Shoulder Coverts.—Ditto, free from patches of colour.

Saddle.—Pure silvery white.

Wing Bow.—Silvery white. *Coverts.*—Greenish black. *Primaries.*—Black, edged with white. *Secondaries.*—White outer web, black inner web, and black end to each feather.

Tail.—Glossy black.

Sickle.—Feathers greenish, glossy black.

Legs and Feet.—White or pinky white.

POINTS OF COLOUR IN SILVER-GREY DORKINGS.—HEN.

Head.—Silvery white, with slight grey marking.

Hackle.—Silvery white, clearly striped with black.

Comb, Face, and Wattles.—Bright coral red.

Eye.—Orange.

Beak.—Horn or white.

Breast.—Rich robin red or salmon red, shading off to grey on lower parts.

Thighs and Underparts.—Grey.

Back, Shoulder Coverts, Saddle, Wing Bow, and Wing Coverts.—Bright silvery grey, with minute pencilling of darker grey on each feather; the shafts of the feathers white. *Primaries.*—Grey or black. *Secondaries.*—Grey.

Tail.—Grey, of a darker shade than body; quill feathers black.

Legs and Feet.—White or pinky white.

POINTS OF COLOUR IN WHITE DORKINGS.—COCK OR HEN.

Comb, Face, and Wattles.—Bright coral red.

Beak.—White.

Eye.—Orange.

Plumage.—Pure white, free from any shade of any other colour.

Legs and Feet.—White.

POINTS OF COLOUR IN CUCKOO DORKINGS.

Comb.—Bright red.

Face, Lobes, and Wattles.—Bright red.

Beak.—White or horn.

Eye.—Bright orange.

Body.—Light bluish-grey ground, each feather barred with bands of a darker grey or blue.

Legs and Feet.—White, red veins showing between the scales; nails white.

COLOURED DORKINGS.

NUMERICAL VALUE OF POINTS.—COCK.

Points to be deducted for defects.

Want of size	20
Defective shape	20
Defective feet and legs	15
Bad head	5
Bad comb	10
Bad colour	5
Crooked breast	10
Bad carriage of tail	5
Want of condition	10
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Very long legs; crooked or much-swollen toes; absence of fifth toe; a sixth toe, or double toenails; spurs growing outside the leg; legs or feet feathered, or any colour but white; tail carried much on one side or squirreled; black upper plumage or much mottled under plumage.

NUMERICAL VALUE OF POINTS.—HEN.

Points to be deducted for defects.

Defective shape	20
Defective legs and feet	20
Want of size	20
Bad colour	15
Want of condition	10
Bad head and comb	5
Crooked breast	10
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Very long legs; crooked or much-swollen toes; absence of fifth toe; a sixth toe, or double toenails; spurs outside the leg; legs or feet feathered, or any colour but white; tail carried much on one side or squirreled; black plumage.

SILVER-GREY DORKINGS.

NUMERICAL VALUE OF POINTS.—COCK.

Points to be deducted for defects.

Want of size	15
Defective shape	15
Defective feet and legs	15
Coarse head	5
Bad comb	7
White in deaf ear	3
Impurity of white	12
White on breast or thigh	8
Crooked breast	7
Bad carriage of tail	5
Want of condition	10
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Other than single comb; other than five toes; feathers on legs any deformity; squirrel tail.

NUMERICAL VALUE OF POINTS.—HEN.

Points to be deducted for defects.

Want of size	15
Defective shape	15
Defective feet and legs	15
Bad head and comb	5
White on deaf ear	5
Defective body colour	15
Defective breast colour	10
Crooked breast	10
Want of condition	10
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Other than single comb; other than five toes; feathers on legs; any deformity.

WHITE DORKINGS.

NUMERICAL VALUE OF POINTS.—COCK OR HEN.

Points to be deducted for defects.

Want of size	15
Defective shape	15
Defective legs and feet	15
Bad head and comb	12
White in deaf ear	3
Bad colour	20
Crooked breast	7
Bad carriage of tail	3
Want of condition	10
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Single comb; coloured feathers; other than five toes; crooked breast or back.

CUCKOO DORKINGS.

NUMERICAL VALUE OF POINTS.—COCK OR HEN.

Points to be deducted for defects.

Want of size	15
Defective shape	15
Defective feet and legs	15
Bad head and comb	10
White in deaf ear	5
Defective colour	15
Crooked breast	10
Bad carriage of tail	5
Want of condition	10
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Other than rose-comb; any actual deformity; coloured feathers; other than five toes; feathers on legs.

GAME.

GENERAL CHARACTERISTICS.—COCK.

Beak.—Long, strong, and slightly curved.

Comb.—(If undubbed) small, thin, straight, erect, well serrated.

Head.—Long, lean, bony, cleanly set on neck.

Eye.—Large, full, round, bright and quick.

Face.—Lean, thin, with fine skin.

Throat.—Long, lean, fine skin, cleanly cut (?)

Wattles.—(If undubbed) very thin, round, small, and smooth.

Neck.—Long, thin, slightly arched, and tapering finely at the base of the head.

Hackle.—Short and close.

Back.—Flat, short, broad at shoulders and tapering to tail.

Breast.—Broad and full.

Stern.—Very fine and carried well up; must not be full.

Wings.—Short, powerful, standing well from body at the shoulders.

Tail.—Small, carried low and very close.

Sickle Feathers.—Narrow, hard, and tapering to a fine point.

Tail Coverts.—Narrow, fine, and short.

Thighs.—Long, very strong and muscular, standing well out from the body, and straight.

Legs.—Long, bony, with fine scales, round.

Feet.—Large, with well-spread flat toes, hind claw well set back.

Plumage.—Short, hard, and bright.

Body in Hand.—Firm, compact, muscular.

General Shape and Carriage.—Erect, fearless, alert.

GENERAL CHARACTERISTICS.—HEN.

Beak.—Long, strong, and slightly curved.

Comb.—Small as possible, thin, straight, erect, low at front and evenly serrated.

Head.—Long, lean, bony, tapering, neat.

Eyes.—Prominent and brilliant.

Face.—Smooth, bony, lean, with a fine skin.

Deaf Ear.—Small, and hanging close to the neck.

Wattles.—Small, thin, fine, and round.

Throat.—Clean and well cut (?)

Neck.—Fine, long, and slightly arched.

Hackle.—Short and close.

Back.—Short, flat, broad at shoulders, and tapering to tail.

Wings.—Short, firm, standing out from the body at the shoulders, but carried close in and well up at the flights.

Tail.—Formed of narrow feathers of moderate length, well whipped, and carried low.

Breast.—Full and broad.

Thighs.—Long, firm, muscular, standing clear from the body.

Legs.—Long, bony, with fine scales, round.

Feet.—Large, with well-spread, long, thin toes, the hinder one well set back, and the foot flat on the ground.

Plumage.—Short and hard, and bright.

General Shape and Carriage.—Smart, upright, fearless, and showing high breeding.

POINTS OF COLOUR IN BLACK-BREADED RED GAME.—COCK.

Head.—Bright orange.

Comb.—Bright red.

Face and Jaws.—Red.

Eyes.—Bright red.

Beak.—Horn colour or yellow.

Neck Hackle.—Bright orange, free from stripes.

Back.—Dark rich red.

Shoulders and Shoulder Coverts.—Red.

Wing Butts.—Black. *Bow.*—Rich red. *Greater and Lesser Coverts.*—Glossy black with metallic reflections, forming a distinct bar. *Primaries.*—Black except two lower feathers, the outer web of which should be edged with bay. *Secondaries.*—Clear bay outer web and black inner web.

Saddle.—Rather darker red than hackle.

Tail.—Black.

Sickle Feathers.—Green black.

Tail Coverts.—Glossy green black, but grey at roots.

Breast.—Black up to the throat.

Underpart of Body and Thighs.—Black.

Legs.—Willow or olive.

HEN.

Head.—Golden.

Face, Comb, Deaf Ear, and Wattles.—Red.

Eyes.—Bright red.

Beak.—Horn colour or yellow.

Neck Hackle.—Golden with narrow black stripes.

Back and Shoulder Coverts, Wing Bow, Shoulder, and Coverts.—Partridge.

Wing Primaries.—Black or dark brown. *Secondaries.*—Outer edge partridge, remainder black (?).

Tail.—Black except the two top feathers, which should be powdered with partridge.

Breast.—Salmon, shading off to ashy brown towards the thighs.

Thighs.—Pale salmon.

Legs.—Willow or olive.

POINTS OF COLOUR IN BROWN RED GAME.—COCK.

Head.—Dark red.

Comb.—Gipsy-coloured—i.e., dark purple.

Face and Jaws.—Very dark ditto.

Eyes.—Black.

Beak.—Black or nearly so.

Neck Hackle.—Lemon-coloured, with a very narrow dark streak in the middle.

Back and Shoulder Coverts and Saddle.—Lemon.

Wings Butts.—Black. *Shoulder.*—Black. *Bow.*—Lemon. *Coverts.*—Green black. *Primaries.*—Black. *Secondaries.*—Black free from grey.

Tail.—Black.

Sickle Feathers and Tail Coverts.—Green black.

Breast.—Black ground colour, feathers with brown shafts and laced with light brown.

Thighs.—Black.

Legs.—Black, or dark willow in aged birds.

HEN.

Head.—Black or dark brown.

Comb, Face, Deaf Ear, and Wattles.—Black or dark purple.

Eyes.—Black.

Beak.—Black or nearly so.

Neck.—Black, with very narrow black stripes.

Remainder of Plumage.—A black or marbled breast indifferently; the rest of the plumage black.

Legs.—Black; very dark willow admissible in adults.

POINTS OF COLOUR IN YELLOW DUCKWING GAME.—COCK.

Head.—Very pale straw.

Comb, Face, and Jaws.—Red.

Eye.—Bright red.

Beak.—Horn colour.

Neck Hackle.—Clear cream colour, absolutely free from black stripes.

Back.—Brassy.

Shoulder Coverts.—Black.

Bow of the Wings.—Brassy, of an even shade.

Wing Butts.—Black. *Greater and Lesser Coverts.*—Black, forming a distinct bar. *Primaries.*—Black, excepting the lower edge of the two last feathers, which should be very pale brown. *Secondaries.*—Black inner web; clear white outer web.

Saddle.—Straw.

Breast.—Black.

Underpart of Body, Thighs, and Tail.—Black.

Sickle Feathers.—Glossy black.

Tail Coverts.—Black, with grey at the roots; lower coverts straw.

Legs.—Willow.

HEN.

Head.—Silvery grey.

Comb, Face, Deaf Ear, and Wattles.—Red.

Eye.—Bright red.

Beak.—Horn colour.

Neck.—Silvery grey or pale straw, with narrow dark stripes.

Breast.—Salmon.

Back and Shoulder Coverts.—Slaty grey.

Wing.—Ashy grey free from pencilling.

Shoulder, Bow, Wing Coverts, and Secondaries.—Ashy grey. *Primaries.*—Black.

Tail.—Black, excepting two top feathers, which should be grey.

Thighs.—Very pale salmon.

Legs.—Willow.

POINTS OF COLOUR IN SILVER DUCKWING GAME.—COCK.

Head.—Clear silver.

Face and Jaws.—Bright red.

Comb.—Red.

Eye.—Bright red.

Beak.—Horn colour.

Neck Hackle.—Clear silver.

Breast and Underpart of Body and Thighs.—Black.

Back.—Clear silver.

Shoulder Coverts.—Black.

Saddle.—Clear silver.

Wing Butts.—Black. *Bow.*—Clear silver. *Coverts.*—Black. *Primaries.*—Black, excepting the lower edge of the two last feathers, which should be very pale brown (?). *Secondaries.*—Black inner web, clear white outer web.

Tail.—Black.

Sickle Feathers.—Glossy black.

Tail Coverts.—Black with grey at the roots; lower coverts straw.

Legs.—Willow.

HEN.

Head.—Silvery grey.

Comb, Face, Deaf Ear, and Wattles.—Red.

Eye.—Bright red.

Beak.—Horn colour.

Neck.—Silvery grey or pale straw with narrow dark stripes.

Breast.—Salmon of a paler shade than in Yellow Duckwings.

Back and Shoulder Coverts.—Slaty grey.

Wing Bow, Coverts, and Secondaries.—Ashy grey. *Primaries.*—Black.

Tail.—Black, excepting two top feathers, which should be grey.

Thighs.—Salmon of a paler shade than in Duckwings.

Legs.—Willow.

POINTS OF COLOUR IN PILE GAME.—COCK.

Head.—Bright orange.

Comb, Face, and Jaws.—Bright red.
Eyes.—Bright red.
Beak.—Horn colour or yellow.
Neck Hackle.—Orange or chestnut.
Saddle.—Rich red.
Breast.—White or slightly marbled.
Back.—Dark rich red.
Shoulder Coverts.—White.
Bow of the Wings.—Rich red.
Greater and Lesser Coverts.—White.
Wing Secondaries.—Red on the outer edge and white on the inner.
Primaries.—White.
Thighs.—White.
Tail.—White ticked with black (?) or white.
Legs.—Yellow or willow, yellow preferred.

HEN.

Comb, Face, Deaf Ear, and Wattles.—Bright red.
Eyes.—Fiery red.
Beak.—Horn colour or yellow.
Neck.—Light gold.
Breast.—Salmon.
Thighs and Tail.—White.
Remainder of Plumage.—White with some red, which is known as "a Rose" on the wing.
Legs.—Yellow or willow, yellow preferred.

POINTS OF COLOUR IN BLACK GAME.

Comb, Face, Deaf Ear, and Wattles.—Deep red.
Eyes.—Black, dark brown, or red.
Beak.—Black.
Legs.—Dark willow or black.
Remainder of Plumage.—Black with metallic lustre.

POINTS OF COLOUR IN WHITE GAME.

Comb, Face, Deaf Ear, and Wattles.—Red.
Eyes.—Bright red.
Beak.—Horn colour or yellow.
Legs.—Yellow.
Remainder of Plumage.—Pure white.

POINTS OF COLOUR IN BIRCHEN YELLOW GAME.—COCK.

Head.—Cream-coloured.
Face and Jaws.—Dull red.
Eyes.—Red.
Beak.—Horn colour.
Neck.—Cream-coloured.
Breast.—Clay, with mixture of brown.
Back and Shoulder Coverts.—Cream and rusty brown.
Saddle.—Cream.
Wing Butts.—Dark brown and rusty black. *Bows.*—Cream. *Coverts and Secondaries.*—Rusty brown. *Primaries.*—Black.
Tail.—Black.
Sickles.—Black.
Tail Coverts.—Black, with mixture of bronze.
Legs.—Willow.

HEN.

Head.—Dark grey.
Comb and Face.—Dull red.
Deaf Ear.—Blue red.
Wattles.—Dull red.
Eyes.—Bright red.
Beak.—Horn colour.
Neck.—Dark grey.
Breast.—Dark bronzy grey.
Back and Shoulder Coverts.—Very dark grey.
Wing Bow.—Dark grey or sometimes black. *Coverts and Secondaries.*—Dark grey. *Primaries.*—Black.
Tail.—Black.
Thighs.—Black or dark grey.
Legs.—Dark willow.

POINTS OF COLOUR IN GINGER RED GAME.—COCK.

Head.—Red.
Face and Jaws.—Reddish purple.
Eyes.—Brown.
Neck Hackle.—Clear rich red colour.
Back and Shoulder Coverts.—Rich red.
Wing Bow.—Rich red.
Wing Coverts and Secondaries.—Brownish red. *Primaries.*—Black.
Saddle.—Rich clear red.
Tail.—Black.
Sickle Feathers and Tail Coverts.—Rich black.
Breast.—Ginger red.
Thighs.—Dusky red.
Legs.—Olive or dark willow.

HEN.

Head.—Yellowish brown.
Comb, Face, Deaf Ear, and Wattles.—Purple.
Eyes.—Brown.

Neck.—Yellow, striped with black.
Breast.—Yellowish brown, shading to dark dusky brown at the lower parts.
Remainder of Plumage.—Yellowish brown.
Legs.—Olive or dark willow.

POINTS OF COLOUR IN WHEATEN GAME.—HEN.

Head.—Light brown.
Comb, Face, Earlobes, and Wattles.—Bright red.
Beak.—Horn.
Eye.—Vermilion.
Neck.—Golden buff striped with black.
Back and Shoulder Coverts.—Light partridge intermixed with buff.
Wing Bow.—Buff or fawn colour.
Primaries, Secondaries, and Breast.—Buff or fawn colour.
Thighs.—Lightish grey.
Legs.—Willow or olive.
Tail.—Black with a shading of brown.

HENNY GAME.

NOTE.—It has not been considered desirable to frame a standard of Henny Game. These may be of almost any of the colours described; the cock is hen-feathered and hen-coloured, and the legs are in all cases white (?)

GAME.

NUMERICAL VALUE OF POINTS.—COCK.

Points to be deducted for defects.	
Bad colour	15
Bad head	10
Bad tail	10
Bad eyes	5
Bad feet	10
Too much feather	10
Want of symmetry	20
Want of condition	10
Bad legs	10
<hr/>	
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Duck feet and bent breasts if bad, wry tail, crooked back. If shown together, birds not matching fairly well.

NUMERICAL VALUE OF POINTS.—HEN.

Points to be deducted for defects.	
Bad head	10
Bad tail	10
Bad legs	10
Bad feet	10
Eyes bad in colour	5
Too much feather	10
Bad colour feathers	15
Want of condition	10
Want of symmetry	15
Large or twisted comb	5
<hr/>	
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Same as for cock. If shown together, birds not matching fairly well.

HOUDANS.

GENERAL CHARACTERISTICS.—COCK.

Crest.—Large, full, and compact, with a sufficient inclination backwards to fully expose the comb.
Comb.—Well-defined even leaf comb, neat, medium size, placed in the centre of the head.
Beak.—Short and stout.
Eye.—Bold.
Wattles.—Rather short and well rounded.
Muffling or Beard.—Large, full, compact, and even.
Face.—Should be much hid by muffling.
Breast.—Broad, deep, and full.
Back.—Broad, moderately long, and straight.
Wings.—Carried well up.
Tail.—Full and well arched, with prominent sickles.
Thighs.—Short, stout, and rather wide apart.
Legs.—Rather short and stout, and perfectly straight.
Toes.—Five in number, straight, and well spread apart. The fifth toe, starting from root of fourth toe, should curve gently upwards.
Carriage.—Bold and lively.

GENERAL CHARACTERISTICS.—HEN.

Crest.—Large, compact, and, above all, globular in shape.
Comb.—Leaf-shaped, and very small.
Eye.—Full and bright.
Wattles.—Small and rather round.
Muffling.—Large and full, and beard pendulous.
Neck.—Full, and not too long.
Breast.—Broad, deep, and full.

Back.—Broad and straight, moderate length.
Wings.—Full and well tucked up.
Tail.—Medium size, carried well away from the body.
Thighs.—Short.
Legs.—Rather short and stout, and perfectly straight.
Toes.—Five in number, straight, and well spread apart. The fifth toe, starting from root of fourth toe, should curve gently upwards.
Carriage.—Sturdy and active.

POINTS OF COLOUR IN HOUDANS.—COCK OR HEN.

Comb.—Bright red.
Face.—Bright red.
Wattles.—Bright red.
Earlobe.—White.
Eye.—Red.
Crest.—Black and white, but may be rather lighter than the rest of the plumage.
Muffling.—Same as above.
Remainder of Plumage.—Glossy black and pure white, mottled. The former may preponderate somewhat in chickens, which have a tendency to get lighter after their first moult.
Legs.—Pinky white, mottled with blue or black.

NUMERICAL VALUE OF POINTS.—COCK.

Points to be deducted for defects.

Deficiency of crest	12
Deficiency of beard and muffling	10
Deficiency of size	18
Deficiency of symmetry	12
Faulty comb	18
Faulty colour	12
Faulty feet	10
Faulty condition	8

100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Many red or straw-coloured feathers; crooked legs, backs, or any other deformity; outside spurs; squirrel tail; absence of fifth toe; any comb other than leaf.

NUMERICAL VALUE OF POINTS.—HEN.

Points to be deducted for defects.

Deficiency of crest	15
Deficiency of beard and muffling	12
Deficiency of size	20
Faulty colour	15
Bad feet	10
Faulty comb	8
Faulty condition	10
Lack of symmetry	10

100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Red or straw-coloured feathers; absence of fifth toe; deformity of any kind; total absence of either black or white feathers; spurs on the outside of legs.

CREVE CŒUR.

GENERAL CHARACTERISTICS.—COCK.

Crest.—Large, inclining backwards, so as to show comb.
Head.—Erect and stately.
Comb.—Even, two-horned, V-shaped, not curved, and free from branches or tynes; moderate size; standing well up against the crest.
Eye.—Full and bright.
Deaf Ear.—Small, well covered with muffling.
Face.—Well muffled.
Wattles.—Moderate length.
Mufflings.—Very full and deep.
Beak.—Strong and well curved.
Neck.—Rather long and graceful; hackle full.
Breast.—Broad and full.
Back.—Broad, long, flat.
Body.—Square and large.
Wings.—Fairly large, well tucked up.
Tail.—Full, and carried moderately high; large sickles.
Thighs.—Short and well covered with feathers.
Legs.—Shanks short; toes straight and long.
Carriage.—Bold and elegant.

GENERAL CHARACTERISTICS.—HEN.

Crest.—Large, compact, and globular.
Head.—Well set on, rather large.
Comb.—Two-horned, as in cock, but small and neat.
Eye.—Full and bright.
Deaf Ears.—Small, well covered with muffling.
Muffling.—Very full and deep.
Wattles.—Moderate length and rounded.
Neck.—Medium length; hackle full.

Breast.—Deep, prominent, and full.
Body.—Square and well developed.
Back.—Flat and broad.
Wings.—Rather large, and well tucked up.
Tail.—Broad and full.
Thighs.—Stout.
Legs.—Short; toes straight.
Carriage.—Lively and bold.

POINTS OF COLOUR IN CREVE CŒURS.—COCK OR HEN.

Comb.—Bright coral red.
Face, Wattles, and Earlobe.—Red.
Eye.—Bright red.
Legs.—Black or slaty blue.
Plumage.—Very lustrous greenish-black. No other colour admissible except perhaps a few white feathers in crest (?).

NUMERICAL VALUE OF POINTS.—COCK.

Points to be deducted for defects.

Bad comb	20
Deficiency of size	20
Deficiency of condition	15
Deficiency of symmetry	15
Deficiency of crest and muffling	20
White in crest	10

100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Any deformity; coloured feathers, except white in crest, which, however, is a fault.

NUMERICAL VALUE OF POINTS.—HEN.

Points to be deducted for defects.

Deficiency of crest and muff	25
Deficiency of condition and plumage	12
Deficiency of symmetry	12
Deficiency of size	20
Bad comb	15
White feathers in crest	16

100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Deformity of any kind; any coloured feathers (except white in the crest, which, however, is a defect).

LA FLECHE.

GENERAL CHARACTERISTICS.—COCK.

Beak.—Rather long; nostrils elevated.
Comb.—Consists of two very even, round, V-shaped horns, without any branches; medium size and neat.
Earlobes.—Neat, free from folds; medium size.
Head.—Rather long, thin, and flat at the side.
Eye.—Full and bold.
Face.—Free from feathers.
Wattles.—Long and pendulous.
Neck.—Long and stylish; hackle not too much developed.
Back.—Long, not too wide, and sloping towards tail.
Wings.—Large and well tucked up.
Breast.—Full.
Tail.—Long, not too full, slanting backwards.
Thighs.—Long.
Legs.—Long; dark slate colour.
Toes.—Even and straight.
Carriage.—Sprightly, graceful, and upstanding.

GENERAL CHARACTERISTICS.—HEN.

Beak.—Rather long; nostrils elevated.
Comb.—Consisting of two very even, round, V-shaped horns, without any branches; small and neat.
Head.—Rather small.
Eye.—Full and bold.
Face.—Free from feathers.
Deaf Ear.—Small.
Wattles.—Small and round.
Neck.—Rather long and graceful.
Back.—Broad, tapering and slanting slightly towards the tail.
Body.—Rather plump.
Breast.—Broad.
Wings.—Large and well tucked up.
Tail.—Small, rather erect.
Thighs and Legs.—Rather long.
Carriage.—Upright and sprightly.

POINTS OF COLOUR IN LA FLECHE.—COCK AND HEN.

Face.—Bright red.
Earlobes.—Pure white.
Wattles and Comb.—Red.
Eyes.—Bright red.

General Plumage.—Black, with brilliant green gloss.
Legs.—Dark slate colour.

NUMERICAL VALUE OF POINTS.—COCK.
 Points to be deducted for defects.

Bad comb	20
Stained earlobe	10
White face	10
Deficiency of size	20
Deficiency of symmetry and condition	15
Showing any crest	15
Squirrel tail	10
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Deformity; coloured or white feathers; red earlobes.

NUMERICAL VALUE OF POINTS.—HEN.
 Points to be deducted for defects.

Bad comb	18
Stained ear	15
White face	15
Want of size and condition	15
Want of symmetry	12
Showing crest	25
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Deformity; red earlobes; white feathers.

COURTES PATTES.

GENERAL CHARACTERISTICS.—COCK.

Beak.—Short and stout.
Comb.—Single, upright, and large.
Head.—Small.
Eye.—Bright and vivacious.
Wattles.—Very long and pendulous.
Neck.—Thick and well feathered.
Breast.—Full and carried forward, and very close to the ground.
Body.—Thick, square, and very low.
Back.—Medium length.
Wings.—Large and not tucked up.
Tail.—Very full and large.
Sickle Feathers.—Long and very ample.
Tail Coverts.—Long.
Thighs.—Very short.
Legs.—So short that the fluff almost touches the ground.
Feet.—Medium size.
Carriage.—In consequence of the shortness of leg much resembles that of a Duck.

GENERAL CHARACTERISTICS.—HEN.

Beak.—Short.
Comb.—Of medium size and falling over.
Wattles.—Well developed.
Head.—Small.
Eye.—Bright and soft.
Neck.—Short.
Breast.—Very full, carried close to the ground.
Body.—Square and low, long in proportion to its depth.
Back.—Long.
Wings.—Low and rather long.
Tail.—Large.
Thighs.—Very short.
Legs.—Very short, so that the keel of breast is but little removed from the ground.
Feet.—Medium size.
Carriage.—Very low and waddling.

POINTS OF COLOUR IN COURTES PATTES.—COCK OR HEN.

Head.—Black.
Face.—Red.
Eye.—Bright red.
Wattles.—Red.
Earlobe.—White.
Legs.—Black.
Remainder of Plumage.—Very black and glossy.

NUMERICAL VALUE OF POINTS.—COCK AND HEN.
 Points to be deducted for defects.

Length of leg	25
Want of size	15
Defective carriage	10
Red on lobe	10
Defective comb	10
White feathers	15
Want of condition	15
	100

A perfect bird to count 100 points.

DISQUALIFICATIONS.

Feathers on legs; many white or any coloured feathers in plumage; lobe red.

OUR LETTER BOX.

Cow-keeping (A. L. L. W.).—There being 20 acres of land, 15 acres being pasture, and 5 acres including large gardens and shrubberies, the first question that arises is whether any portion of the garden land can be yearly cropped with Mangolds, Carrots, Cabbage, or large cattle Potatoes, and if so how much? Can any portion of the pasture land be converted into tillage, say about two acres, for the growth of vegetables for the cattle in the winter months? If the gardens cannot be made to produce roots for the cows, or if none of the pasture can be turned into tillage, roots will have to be purchased for feeding the cows in winter. We think that five cows may be kept, and recommend three Guernsey cows, two to calve in the spring and one in the autumn, in addition to the two Kerry cows. The pasture to be made available should be divided in the centre with a strong, fixed, flat-barred iron fence, and a moveable fence to be used across strong flat-barred iron hurdles, so that one-half of the pasture should be cut for hay each year alternately, the other being fed off by cows, and the moveable fence could be used across as to give the animals a change occasionally. If the pasture is broken up in part, Rye and Trifolium may now be sown for green fodder in the spring, to be followed by Mangolds, Cabbage, and cattle Potatoes.

Farm Horse Stables (J. O.).—If the horses are stalled and tethered they should stand in pairs as they work together. The double stall is best, and should not be more than 10 feet in width, each animal being tethered at the extreme corner of the manger; they cannot then cross each other, nor can they eat except separately. The rack or manger should be 36 inches above the floor of the stall; the top edge of the manger should be 2 feet wide; at each corner the manger used for corn food, &c., should be 2 feet square at the top and 15 inches deep; the intervening space between these should be for hay or chaff, of the same width and depth, so that each animal may feed in common without disadvantage in any respect. Earth floors should be 2 feet deep, filled with strong loamy earth, perfectly dry and screened to remove stones. When the excavated stalls are filled with dry earth it should be rammed down whilst being filled with a heavy iron-headed rammer—it will then absorb the liquid manure immediately. The earth in places where it is saturated will have to be removed and replaced with dry fine earth as at first, but the removal and renewal need not extend beyond the portion stained. The guide as to the time and necessity for removal must be noted by the tainted atmosphere of the stall, for until they begin to give off the fumes of ammonia sufficient to injure the health of the horses the floor need not be disturbed beyond the actual removal of dung and stained straw. How often the removal of the earth will be required will depend upon the manner and correctness of working out the details we have given; but it will require constant attention on the part of the proprietor, for it must be remembered that the teamsmen or carters are often men of strong prejudices, and will render any plan abortive which they do not happen to approve of. We must, however, observe that the best plan is for each horse to have a box to itself of not less than 10 feet by 12 feet, and then with the earth floor it would not require removal or renewal of earth for several years, because the urine would fall in different parts of the box, the whole surface of the floor would be used for absorption. Still in either case, whether of stalls or boxes, especially for nag horses, if the earth is properly rammed down it will during use remain hard and smooth. Such a floor can be swept clean, and used as well as a concrete or any other floor, without straw or litter of any kind when the animals are absent. We have carried out this system for many years with great success.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.						Rain.
1882.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.				
October.	November.		Dry.	Wet.			Max.	Min.	In sun.	On grass.			
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.			
Sun.	29	29.751	45.2	42.2	N.E.	47.0	51.0	41.8	89.7	38.5			
Mon.	30	29.893	48.1	46.0	S.W.	46.2	52.8	38.3	83.3	27.2			
Tues.	31	30.050	44.0	43.3	W.	46.5	56.4	40.2	85.9	55.7			
Wed.	1	29.693	53.1	50.2	S.	47.1	58.3	43.1	84.3	40.8			
Thurs.	2	29.860	52.5	49.9	S.W.	47.9	57.7	45.4	76.3	39.0			
Friday	3	29.877	50.5	48.3	S.W.	48.6	57.8	48.8	89.8	42.9			
Satnr.	4	29.653	53.8	48.3	N.W.	49.3	57.9	49.8	91.8	46.0			
		29.825	49.6	46.6		47.5	55.9	43.2	81.6	38.6			

REMARKS.

29th.—Fine, with bright sunshine; fine prismatic solar halo 3.30 P.M.
 30th.—Fine early; damp hazy day, with rain.
 31st.—Fine generally.
 Nov. 1st.—Fine at first and warmer, afterwards high gusty wind and showers; gale at night.
 2nd.—Generally dull, but some bright sunshine at intervals; gusty wind; very heavy rain at 7.10 P.M.
 3rd.—Fine bright morning; overcast in afternoon, with sprinkle of rain; high wind in evening.
 4th.—Very heavy gale in early morning; bright breezy day.
 Temperature higher than in the previous week, and slightly above the average.
 Much wind.—G. J. SYMONS.



16th	TH	Kingston, Tunbridge Wells, and Croydon Chrysanthemum
17th	F	[Shows.]
18th	S	Leicester Chrysanthemum Show.
19th	SUN	24TH SUNDAY AFTER TRINITY.
20th	M	
21st	TU	Manchester, Liverpool (two days), Oxford, and Brighton (three days) Shows.
22nd	W	Northampton (two days), Birmingham (two days), and Wimbledon Shows.

HYBRID PERPETUAL ROSES IN POTS.

THE cultivation of Roses in pots is becoming more general, judging by the numerous questions asked and answered in these pages. All are anxious to grow a few plants in pots to yield a supply of flowers before they can be gathered outside. In gardens where there is only a glass frame some good Hybrid Perpetual Roses may be grown, and blooms will be produced long before any can be gathered outside.

The cultivation of Roses in pots is easy in comparison to that of many plants, and none need fail to produce blooms of first-rate quality from plants in pots if care and attention is devoted to them. No time is more seasonable than the present to commence their cultivation. When blooms are wanted without losing time in preparing the plants it is decidedly the best way to purchase a number, as plants can be had at moderate prices quite suitable for potting. Young plants can afterwards be raised to increase the stock.

It is difficult to obtain good Roses on their own roots suitable for this purpose, as the majority prepared for sale are worked upon various stocks. The question arises, Upon what stock are Roses likely to succeed the best when grown in pots? Upon this, as upon many other subjects, there is a variety of opinions. Some prefer the seedling and cultivated Briar, others the Manetti, and others plants upon their own roots. For pot culture I have found the last-named preferable to worked plants. Roses do well on the Briar, and where standards, half-standards, and others on short stems are required no stock can excel it. Roses also succeed on the Manetti for a few seasons, but will not last long if the union of the stock and the Rose is above the soil. Where there is no choice, and circumstances compel cultivators to pot Roses upon the Manetti, those worked close to the root should be selected. Some work them very low, while others work them so high that it is impossible to bury the union when first placing them in 7-inch pots. In ordering the plants for potting it is well to state what the plants are required for, and request that they be worked close to the root. When the union is buried the plants quickly emit roots from it, and in two or three seasons are independent of the stock. When worked upon the Briar it is immaterial whether the union is buried or not.

Where Roses have been annually raised from cuttings and the cultivator is in possession of plants from fifteen to eighteen months old that were grown for a time in pots and then planted out for a clear season's growth, he will have a good start.

These plants, if they have had liberal treatment, will be equal to any worked plants that have taken three years to produce. When practicable I prefer lifting the plants before the foliage falls, and then roots are formed after they are potted before winter. Roots are seldom formed in autumn when the plants have to be purchased late and perhaps travel a long distance. After potting the plants should not be pruned further than merely removing the long straggling ends of the shoots.

The autumn treatment is simple after potting. They should be plunged outside, covering the pots with ashes or other material. They will need no water if the soil used was sufficiently moist, as the material in which they are plunged will prevent them drying. High winds quickly dry the soil in the pots checking root-action if the plants are stood outside, and on these grounds alone I recommend plunging. It will be found upon examination in a very short time after potting that many roots have reached the sides of the pots, and in consequence vigorous growths will be produced in spring.

The winter treatment entails but little labour. They should have the protection of a cold frame on the approach of severe frosts. Abundance of air on all favourable occasions, and water at the roots when they require it, is then all the attention needed.

The first pruning should be done during the month of February, but before that the frame in which they have been during the winter should be kept rather close, so that growth will commence from the top of the shoots. By this means root growth is encouraged, and after the final pruning the plants start vigorously. In pruning the wood should be well cut back, leaving only about two eyes on each shoot, as no advantage is gained by leaving them longer. The pruning after the first season's growth will much depend upon the cultivator, whether he is an advocate for hard or moderate pruning. The shoots can be left 8 or 9 inches in length, and tied out, bringing the ends of the shoots well down, otherwise they are liable to break only from the one or two buds nearest the end, thus leaving the lower buds dormant. Although this system can be practised with marked success, I prefer subjecting the plants to a more severe system of pruning, and trust more to growths thrown up from the base to form a good plant than by tying out the shoots. The plants cut back closely will produce better wood and finer blooms than by a more moderate system of pruning.

After pruning, and when growth has fairly commenced, air must be carefully admitted to the plants. If this is injudiciously carried out much injury may be done during March, when the foliage is tender and the air at times piercingly cold. It is a frequent practice in spring to start these young plants in heat for the sake of the few blooms they will produce. This is a great mistake, as it proves detrimental to their future development. They should remain under cool treatment, and be allowed to grow and bloom—that is, if the blooms really are required—with the protection only of the frame. If the blooms are not wanted they should be removed as soon as they appear, which will prove beneficial to the plants, and the growth in consequence will be stronger.

Very little syringing is needed early in the season, as the leaves will be covered with dew every morning while the frame is entirely closed during the night, which should be the case

until the season is well advanced and it is safe to ventilate the frame all night. When daily or frequent syringings become necessary about 2 lbs. of soft soap should be boiled for about half an hour, then mixed with four gallons of water. Half a pint of this should be placed in each large canful of water every time syringing is done. The soft soap will leave no stain upon the foliage, but impart to it a fine dark green colour, and the plants will be free from mildew, red spider, and green fly.

Roses while growing require liberal supplies of water, as, if the soil is allowed to become dust dry, the roots soon suffer. When the pots are full of roots liberal treatment should be resorted to; we generally commence giving weak stimulants as soon as the flower buds can be seen.

When the plants are grown in cool frames freely ventilated on all favourable occasions but little staking is needed the first year. Staking, however, is necessary after the first season in order to regulate the head of bloom, as some shoots will grow much longer than others before they show bloom, and if they are not neatly staked they present an irregular appearance when in flower. When all fear of frosts are past the plants should be thoroughly hardened and placed outside. The summer treatment consists of syringing and watering.

When potting is done care must be taken that the drainage is good, and the soil should be pressed firmly into the pots. Roses in pots can be repotted at almost any time during the summer, and sooner than allow the plants to become root-bound in their first pots we prefer transferring them into others 2 inches larger. This can be done after flowering, or as soon as their pots are well filled with roots. We have found the plants do better under this system the following year than if allowed to grow in their first pots until autumn, as their roots would then require to be disentangled, which must be done very carefully, or the plants may be seriously checked. Plants of good size can be grown in 10 inch pots, but plenty of root room should be given them in their early stages, as they make greater progress than if confined in very small pots. After the plants have attained to a fair size and are growing in 10-inch pots, which are large enough for all ordinary decorative purposes, they should be repotted annually. The old ball may be partially reduced and the plants placed again in the same size pots. When the plants are once established the time repotting should be done entirely depends upon when the plants are wanted to bloom. For instance, those required to produce flowers towards the end of February should be attended to towards the end of July, others in August, and none later than the month of September, which gives the plants ample time to become thoroughly established in their pots before they are required for forcing.

The soil most suitable is a strong fibry loam, to which should be added an 8-inch potful of bonedust, and the same or nearly as much soot to each barrowful of soil, with sufficient coarse sand to render the whole porous. If sandy loam only can be procured clay should be spread out to dry during the summer and crushed into dust, by which means it can best be incorporated with the loam. If plants are divided into two batches, and one lot potted in light sandy loam, and the other with a fair quantity of clay mixed with the same kind of material, the wood, quality, and colour of the flowers from the plants growing in the latter will show a marked superiority over those produced by plants grown in the former.

The following are twenty-four useful varieties that thrive well in pots:—La France, Abel Grand, Anna Alexieff, Comtesse d'Oxford, Marie Baumann, Victor Verdier, Charles Verdier, Annie Laxton, Charles Margottin, Jules Margottin, Duke of Edinburgh, Alfred Colomb, Glory of Waltham, Baronne de Rothschild, Senateur Vaisse, Duke of Wellington, John Hopper, Madame Lacharme, Général Jacqueminot, Coquette des Blanches, Mdlle. Eugénie Verdier, Hippolyte Jamain, Capitaine Christy, and Magna Charta.—W. BARDNEY.

ALNWICK SEEDLING GRAPE.

I HAD a Vine of this variety direct from Mr. Bell, and my experience of it last year, when it was allowed to carry a few bunches, was exactly that of Mr. S. Castle—a very few large berries and a host of small ones. This year it is everything that can be desired—

fine in berry, bunch, and colour. The colour is as deep as Black Alicante (which I find one of the best Grapes for colouring), and the flavour is far superior to that well-known variety. The way I attained the desired end was by dusting the Alnwick Seedling with the pollen from Trebbiano, care having been taken to perform the operation in the middle of the day when the pollen was dry, ventilation being afforded by the back and front lights to facilitate this. I may mention that I left one bunch unfertilised for trial, and this one was exactly the same as the whole of the bunches in the previous year—viz., a number of small berries and a few large ones. I have no doubt the Alicante would be a good variety to fertilise the Alnwick Seedling with. We have it planted in a late house with only a flow and return pipe.—GEORGE COOKE, *Nannan Park Gardens*.

So much has been written about Alnwick Seedling Grape in respect of its setting qualities that I have sent you a bunch of it to show its character here. I bought the Vine in January, 1879, and planted it in a lateinery well heated, and where there are Vines ten years old of Black Alicante, Lady Downe's, Black Ham-burgh, White Frontignan, and Buckland Sweetwater all fruiting well. My employer is so disgusted with the Black Currant type of Alnwick Seedling Grape that he has condemned it; therefore I inarched Black Alicante on the rod last March, and it is doing well.—F. BEZANT, *St. Peter's Hill, Caversham*.

[There were seven full-sized herries on the bunch sent, and upwards of a hundred like Black Currants.]

CULTURE OF GARDENIAS.

It is surprising that in many good gardens these beautiful flowering plants are so much neglected, as their culture is simple, and the fragrant pure white flowers under proper treatment are produced in abundance nearly the whole year round. The proper flowering season is during the months of April and May, and almost equally profusely in September and October, yet there need scarcely be a week during the whole year when a few blooms cannot be had. Cuttings of the half-ripened wood can be taken in January or February; three being inserted in a 60-sized pot and placed in a close moist heat will strike root readily. They should be potted before the roots become matted, and be again placed in strong heat till they are established in the new soil. It is best to strike a few in this way every year to maintain a stock of young plants. The most suitable soil is a mixture of about one-sixth well-decayed cow manure, the same quantity of broken bones, charcoal, and coarse sand, the remainder to be good fibrous loam.

A well-heated pit having a south aspect is the best structure for Gardenias either in pots or planted out at discretion, but for convenience I advise that they be grown in pots, as the plants may then be taken out to be cleaned, and the pit may also be cleansed with greater facility than when planted out. This is a very important point in their culture, as they are very subject to attacks of green fly, scale, and mealy bug. The latter when once established is very troublesome, and the only effectual way of dealing with it is to grow-on a batch of clean young plants in another house or pit, and as soon as possible to destroy the old stock; then thoroughly cleanse the pit, and introduce the young plants. For scale and fly syringe the plants during the summer months about once a week with a solution of fir-tree oil insecticide in the proportion of about a wineglassful to four gallons of tepid water. The plants should be plunged in leaves, as this will lessen the labour of watering, and during the growing period they must be liberally supplied with water, giving weak liquid manure on alternate days.

A light shading is necessary during the spring and summer months on bright days, with sufficient ventilation to maintain a circulation and no more, as these plants delight in a strong moist heat whilst making their growth. When the shading is removed and the pit closed for the day they should be syringed heavily with tepid water. The best season for repotting is immediately after they have flowered in spring, which will be about the first week in June.

Provided the plants have done well the shift needed will be into pots a couple of sizes larger than those they have occupied, as they are very quick-growing plants. The drainage should be carefully formed of broken pots, pieces of charcoal, and bones, perfect drainage being of the utmost importance, as the quantity of water they require is so large. The larger roots round the outside of the hall should be loosened with a pointed stick to enable them the more readily to take to the new soil, the compost to be the same as that previously advised, and be pressed firmly in the pots, for if this be not done the water will pass away through the new soil, having very little effect on the old hall. The leaves in which they

are plunged should be renewed every autumn, but care should be exercised that the bottom heat does not exceed 70° ; therefore leaves only should be used, and these not in any great bulk. A minimum winter temperature of 60° is necessary to keep the plants in robust health.—W. L. H.

THE FORMATION OF DEW.

IN his laudable endeavour to set me right in the matter of dew-formation "W. Y." has confused two distinct phases of the subject. He rightly says that "the cause of the deposit is an interesting one," and when I tell him that my whole theory and practice of giving air, which is a somewhat elaborate one, is entirely based on what I have stated about dew-formation he will readily acknowledge that I am quite alive to its importance. If he succeeds in proving me wrong in this part of the subject my whole treatise stands condemned, but I hope I shall be able to show that what I have stated is tolerably correct.

"W. Y." says, correctly enough, "that hot air can hold more moisture invisible than cold air, and that as the cooling process goes on the air becomes saturated—i.e., can hold no more invisible moisture, but must deposit it or make it apparent in the form of fog, &c." This agrees with a text-book I have by Professor Ansted, where minute particulars and calculations are given thus: "It is found that when the temperature is 50° each cubic yard of dry air (about 168 gallons) can hold nearly 150 grains (one-third part of a fluid ounce) of water. At 32° , or the freezing point of water, only one-half this quantity is contained, and at 70° nearly double can be absorbed and retained in an invisible form. . . . When a change of temperature occurs, and the alteration is in the direction of increased heat, the air continues to absorb; but the moment that a diminution of heat takes place, owing to any cause, not only does the power to absorb cease, but the power to retain is lost, and visible vapour represents the difference."

So far, then, Professor Ansted, "W. Y." and my humble self are in perfect accord; but when "W. Y." comes to apply the theory to the dew-formation in my fruit houses he is not on such safe ground. He says "It is not the rise of temperature caused by the sun coming out which causes the dew to deposit on the Vines, slates, &c., because any rise of temperature must infallibly cause an increase in the moisture-carrying capacity of the air before it can cause much moisture to be evaporated from the ground in the house or anything in the house; but it is the radiating power of the plants and other substances which have, so to speak, chilled themselves, and thus previously caused the air to deposit dew on them."

Now a dew-deposit in any way is one of the things we have to guard against, and we do not generally allow our fruit houses to fall rapidly to a sufficiently low temperature to cause dew-formation in this way; and practically in well-managed forcing houses, unless in the earlier stages of growth, before the fruit is far advanced, no dew-deposit takes place from a decreasing temperature. Like the outside temperature, that of our houses keeps declining generally till sunrise, when it reaches the lowest point; but it does not decrease so rapidly as that outside, owing to the presence of a warming apparatus and the screen of woodwork, glass, and foliage, which checks radiation, so that what is generally called the dew point is not actually reached. In the earlier stages of the growth of some fruits we are not careful to prevent dew, and with such decorative plants as have not very soft foliage we often find it to our advantage when no flowers are present to allow the dew to form on them. But all this is entirely at our command, and it is not a matter of haphazard work, as "W. Y." seems to imagine. A very little precaution will prevent its formation altogether, and on the other hand, the atmospheric conditions being favourable, dew can be created at will.

For the purpose of my argument dew may be called distilled vapour. We have seen that when the temperature of what is called dry air is 50° there can be present in it as much as a third of a fluid ounce of water to the square yard, and that the temperature has only to rise 20° higher for the water-carrying capacity to be doubled. Now I have repeatedly said that a moist atmosphere is not of itself inimical to the keeping of fruit, but that a dry air is so; and in practice there is certainly no lack of moisture at any time in the houses under my charge, so that dew or no dew is merely a question of warming and ventilating. In distillation the vapour is condensed when it comes in contact with the cold surface of the refrigerator; in our fruit houses, when badly managed as regards ventilation and warming, the fruit may too often be a refrigerator, and condensation take place on its surface.

It matters not how warm the air may become, and its water-carrying capacity consequently increased, if a cold surface is

presented to it there will certainly be condensation, just as there would be on a piece of cold metal held in the steam from the spout of a tea-kettle.

There are, then, two distinct and separate conditions of the atmosphere during which dew is deposited. Firstly, when the air becomes suddenly cooled it can no longer hold all the moisture it contained in invisible suspension, and must deposit it in the form of dew, or it changes to fog, &c. Secondly, when the temperature rises rapidly it takes up of necessity a greater quantity of moisture, and any surface with which it comes in contact that is sufficiently cold acts as a refrigerator, and vapour is condensed on it so long as the said surface remains cold as compared with the air surrounding it. Under the second conditions it will be found that the order of things is somewhat reversed; for whereas under the first-mentioned conditions it is, as said in the book just referred to, the case that "plates of metal (good conductors of heat) remain quite dry, while wood (a very bad conductor) becomes quite wet," under the second conditions, or when the deposit takes place from a certain rise of temperature, the metal (the good conductor) is the first to become wet, and the wood, if not painted, is one of the last.

Everybody must have noticed that when the weather suddenly changes from cold to warm that slates, stones, metal, and many other things become damp in proportion to the suddenness and extent of the change. These substances cannot be warmed so quickly as the surrounding air; the moisture consequently is condensed on them, and there it will remain till sufficient time has elapsed for the warm air to penetrate them. This is just what happens in our houses, if we allow it to happen, almost every day during summer and autumn, and is the cause of a great deal of decay in fruits of different kinds, the disfigurement known as rust on Grapes, the damping-off of flowers and plants, and many other evils. In the dwelling house it is the source of rusty fire-irons, damp clothing, spoiled pianos, and endless colds.

The remedy for all is the same—to guard against sudden fluctuations of temperature. A little fuel to keep up the temperature of a dwelling house during cold weather saves many an aching heart and a heavy bill. I often hear people complain, "Oh! my house is so damp, it gives me the rheumatism; yet I always keep a good fire during damp weather." The mistake is a very general one, and as damp weather frequently comes after frost the saddle is put on the wrong horse. When a sudden change of weather comes after frost I take care not to remain long in any building, public or private, which I know has not been kept well warmed, and the younger members of my family have the benefit of an absence from school till the dew at least has taken its departure from the inside walls of that building.—WM. TAYLOR.

ASPARAGUS IN AUTUMN AND WINTER.

As a vegetable of the highest class there is nothing in our gardens more generally esteemed than Asparagus. It is easily cultivated, and may be grown to give a supply over a period of almost eight months—namely, from early in November till June.

This autumn being so exceptionally wet and sunless, we were rather doubtful whether our Asparagus crowns would be matured and submit to early forcing, but they have stood the test well and promise to be very satisfactory. On October 21st we cut the withered stems from three or four dozen plants. They were then lifted and at once transferred to the bed of a Cucumber pit. Here the bottom heat averages 65° and the surface temperature 10° less. Over the slates in the bed a thin layer of soil was spread, and on this the roots were placed together closely, lightly covered with soil. In a few days many young crowns could be seen pushing through the soil, and on the 4th of November the first dish was cut. The heads were good, and looked both tender and sweet. This is one of the best ways of forcing Asparagus we have ever practised, and if we continue to put two or three dozen roots in fortnightly we shall be able to cut two or three dishes weekly so long as needed.

Respecting the roots it may be well to say a few words. Had the plants been grown on the old-fashioned system, and so close together that the ground could not be seen between them in summer, we should not have expected them to produce useable heads at this season; but our Asparagus is growing now on what is known as the trench system. When one year old they were planted 3 feet apart each way, and now when they are three and four years old we are lifting every alternate one for forcing. At this rate the permanent rows stand 6 feet apart. It is in this way that large crowns are developed and become thoroughly ripened in autumn. One large crown every 6 feet will give more produce, and that of a very superior character, to roots 1 or 2 feet apart. Crowding vegetables is a mistake in every case. I have mentioned the permanent plants as standing 6 feet apart,

but in reality we have no "permanent" Asparagus, as a number of young plants are raised from seed annually, and all follow in rotation for forcing. When the roots have been thinned out to 6 feet apart they are left there for a year or two, and then they are used for forcing too, as in my opinion the only way to keep up a supply of good Asparagus for all purposes is to have abundance of robust young roots coming forward in a rich and suitable soil.—J. MUIR, *Margam*.

BUCKLAND SWEETWATER AND GOLDEN QUEEN GRAPES.

IN reply to "W. L. H.'s" remarks on page 430, my object in saying that Buckland Sweetwater realises a higher price in the market than Foster's Seedling was to show that it is in greater demand, and on that ground, looking at it in a commercial point of view, it must be considered a better Grape than Foster's Seedling; but tastes differ, for what suits one palate does not suit another. I may add that I have to grow Grapes for a gentleman's table, and Foster's Seedling and Buckland Sweetwater are grown side by side under exactly the same conditions, but the latter is in greater demand than the former. I have not a word to say against Foster's Seedling; on the contrary I am of opinion that no collection should be without it. I can bear out all your correspondent "H. M." says respecting Buckland Sweetwater as an exhibition Grape. I have known this variety take first honours at horticultural exhibitions, where competent judges have been employed. The Vine with me grows freely, is very prolific, and the berries set as freely as those of the Black Hamburgh, the berries being large, even, and of a beautiful amber colour. I consider it indispensable in the early vinery.

In reference to Golden Queen, I did not intend to infer that it was an early Grape. It has not been very favourably spoken of. I have heard it does not succeed in all situations, but I find it a free grower and bearer and good setter; bunches not extra large, but symmetrically shaped; berries oval, medium-sized, and of a beautiful amber colour; quality fairly good. It ripens well in a late house with Lady Downe's and Alicante.—G. R. A.

HEATING GREENHOUSES—RIPPINGILLE'S STOVES.

THE present dull, wet, and foggy weather reminds me that the heating arrangements of all glass structures should be at once put in proper working order, as too often frost takes us by surprise. These remarks are not intended for practical gardeners, but all who have a greenhouse filled with plants I would advise to employ a little fire heat to dry such houses once or twice a week, even if it is not frosty weather. It should be borne in mind that more damage is done to plants by ill-ventilated houses than by frost. Ventilate in the daytime on all favourable occasions, and avoid as much as possible fire heat at night. Amateurs and others who have a greenhouse and no heating apparatus are often at a loss to know how to utilise the house through the winter months, but for such there is a remedy by using one or two of Rippingille's stoves, which burn petroleum. They can be placed on the paths as near the front of the house as possible. As this is the coldest part, they will not injure the most delicate Fern if properly managed and if plants are not in direct contact with them. These stoves are managed in the same way as ordinary lamps. Properly trimmed and filled they will burn from eight to twelve hours according to size. During the late severe winters I used them where we had any doubts of the ordinary means of heating being insufficient. They were managed in this way: At 10 P.M., if it appeared likely there would be frost after midnight, the stoves were lighted as a precaution. It often happens that when the most heat is required there is not sufficient—that is, say, five and six o'clock in the morning; at that time the heat generally is on the decline. In such cases the stoves in question will be found invaluable for temporary heating.

The price of petroleum, as a rule, is about 1s. per gallon. Two or three years ago I made some trials with these stoves so as to learn the cost per night for oil, and if my memory serves me the cost was about 3d. per night of, say, eight or nine hours. The simplicity of these stoves will, I think, recommend them; indeed, I know some ladies who manage these little matters themselves, and find pleasure in the occupation.—A. O. W.

AMERICAN APPLES.—It is noticeable that the export shipments of Apples from New York have been larger of late than from Boston, which is the reverse of what they have been in former seasons. The total export shipments for the week ending October 21st were from New York 15,633 barrels against 10,949 from Boston. There had been previously shipped from New York 35,616 barrels, so that

the total export for the season would be 51,248 barrels; from Boston there had been exported this season before last week 24,613 barrels, so that the total exports thus far this season have been 35,562 barrels. The total exports of Apples from Boston and New York this season have been 86,811 barrels. A cable dispatch from Liverpool recently announces the sale of 4000 barrels of American Apples at prices as follows:—Kings, 22s. to 25s. per barrel; Baldwins, 17s. to 20s.; Northern Spy, 15s. to 20s.; Roxbury Russets, 16s. to 18s.; Greenings, 14s. to 16s. Up to the present time the European market for American Apples has been mainly confined to Great Britain, but if the opinion of our Minister to Sweden, Mr. J. L. Stevens, is correct, there seems to be an opening for them in northern Europe, where no good Apples can be grown, as is the case in Denmark, Sweden, and Norway. The few that find their way to these countries are mostly from France, and are to be found only in the larger cities, where they are sold for an average of 6 cents each. Mr. Stevens thinks that the keeping qualities of some American Apples, and their adaptation for transportation, as well as the fact that they are of better flavour than any now found there, make them admirably adapted for the markets of northern Europe. The journey is longer than to England, but the prospective price is greater.—(*American Cultivator*.)

PLANTING ROSES—SPRING v. AUTUMN.

IN reference to this question, raised by "D., Deal," I much prefer the autumn for planting Roses and most trees and shrubs. Roses may be taken up and planted any time from the middle of October until the end of November (weather permitting), and these will give much better flowers the following season than those planted in March: at least that has been the case here in dry soil. In reference to root-action, I may say, in the autumn of 1879 snow and frost came on before I had finished planting Roses, therefore the remaining plants had to be laid in until early in February; but although the plants were laid in during a snowstorm, which tended to make the ground very cold, and were frozen in all the winter, when taken up at the above date they had made roots from 1 to 2 inches in length. The Roses in question were dwarfs on seedling Briars. I do not know if Manettis would have made roots similarly when the soil was frozen at the surface, but this instance quite clears up the point about Roses making roots in cold soil. If those Roses had been in their proper place the risk of breaking off many of the very tender rootlets would have been avoided. The plants planted in autumn were much stronger than those planted in spring, all being on the same piece of ground.

Another advantage in autumn planting is that the supply of sap is checked, and they are, therefore, much harder to withstand the frost than free-growing robust plants that have received no check. I have noted this for many years, more particularly in 1866. Early in the autumn of that year I planted a considerable number of standard Roses amongst others in free growth—i.e., having taken out all the weak plants from the beds and filled in with the new. A severe winter followed, and the result was that three-fourths of the plants not moved were killed outright or died during the following summer, whereas the fresh-planted Roses were in most cases quite safe. But it must be remembered there are exceptions to all rules, and it would be better to plant in spring than to plant into very heavy wet soil in the autumn, planting them as early as possible in the spring as soon as the ground is in good condition; thus, as in all cases, practice must vary according to circumstances.

In reference to Teas, I would prefer to plant them in autumn if on the seedling Briar; if on their own roots out of pots in May. Plants in general suffer much from March winds when they are planted in spring, and if very dry even require water. Mr. Prince's Teas were very fine, but if Mr. Prince was asked the question I have no doubt but he would prefer planting in the autumn and giving slight protection; but, as I said before, practice must vary according to circumstances. I should much like to hear what other rosarians have to say on the matter.—J. BROWN, *Great Doods, Reigate*.

I AM surprised to learn from your correspondent, "D., Deal," on page 402 of the Journal, that the "weight of evidence" tends towards spring planting as against autumn planting of Rose trees. I prefer the autumn for planting. But there is autumn and autumn. September, October, and November represent autumn, therefore when we talk about autumn-planting we take the mean, which means October. Surely the earth is warm then. It is not fair, I think, to condemn autumn planting because this year it seems to be an impossibility. Surely in ordinary seasons the last week in October and the first in November are the best weeks for planting. Moreover, if the weather is wet and cold and the winter severe the soil will be colder in February than it is today (4th November); moreover, I distinctly assert from actual

experience that root-action in autumn is a most positive fact. The winter of 1879 and 1880 was a very severe one. The previous autumn I bought in a goodly number of Roses, and had them all planted early in November. They were well mulched with light dry material. In February I had occasion to transplant many of these newly planted trees, and I was astonished to find how their roots had started; in every plant one could see innumerable little white rootlets. So much for root-action in winter in "cold" soil.

And now to argue from the other side of the question. If you always plant in February you must prune before trees are established. If you delay pruning for six weeks after planting your blooming season is too late for the first shows. I am writing only of Hybrid Perpetuals, with Teas the case is quite different. These precious darlings require much looking after; they are the first out and the last in. Whenever I buy in any Teas I invariably heel them in and plant out as early as possible in March—that is to say, as soon as the ground is in working order. In six weeks they are growing fast, and the middle of April sees them beginning to develop flower buds on the top shoots; but it does not matter, for Teas are much better if pruned when the sap is very active, whereas with Hybrid Perpetuals the opposite is the case. At least this is my impression. "D., Deal," says that Mr. Prince's experience is worth a bushel basket of theory. So it is; but Mr. Prince and "D., Deal," in the matter under consideration, had their eyes on Tea Roses only.

And now let me strongly advise all young rosarians to plant Hybrid Perpetuals very early, and not use rich farmyard manure as a mulch. Whatever is put on the ground both as a stimulant and a protection should be of a dry nature. I feel assured that many thousands of Rose trees have been killed the past four years by heavy dressings of very wet "muck," so heavy that the moisture has been retained for weeks, to be thawed every day that the sun shines and frozen again every evening Jack Frost chooses to come. Put it on dry and light, not heavy and wet. At least this is my experience.—J. A. W., *Alderminster*.

YOUR correspondent "D., Deal," in his letter on "Planting Roses in Autumn" asks your readers for their experience in this matter. As my limited amount of Rose-growing is conducted on a soil which I should imagine to be most highly suited for autumn planting—viz., a deep and dry loam on limestone subsoil, I offer my experience such as it is.

For the last ten years I have planted Roses both in November and February, and never thought there was much to choose between the two seasons until two years ago, when I bought 150 dwarf Roses, twelve Teas, and the rest Hybrid Perpetuals. These I laid in the ground, covered a foot above the roots until February. The winter was very severe, a thermometer registering 40° of frost, but I only lost two or three, one of which was a Tea; the others, though a few were killed down to the earth line, were fairly fresh and uninjured, and when planted grew and flowered well. At the same time well-established trees of two and three years' growth in the open beds were either quite killed or much injured, but not quite so universally so as in the preceding year, 1879. But why should a frost of 29° in 1879 do more harm than one of 40° in 1880? I think for two reasons: firstly, because in 1879 we had a late damp summer and autumn without early frost, keeping the wood in a growing and unripe state until December: early in which month my second reason, an exceptionally severe frost for the time of year, came, the effect on the sap vessels, still full, being to burst them and kill the trees; indeed, it treated the unripe Rose shoots as it often does full water pipes and bottles.

I think the best way to protect Roses from frost is to take them up about November 1st, and lay them in until February; but I hear some people say, "Oh! my Roses are still growing." Then there is all the more reason for taking them up to stop their growth. This season Roses are growing very late, and now is the time to put this theory into practice. To summarise: my experience says, "Plant in February and prune close."—I. F., *Lincoln*.

I THINK this question is a matter of season, soil, and climate. As to season, for instance, last November I transplanted several hundred Rose trees, many of them old plants. Not more than three or four of the most sappy ever flagged; the majority went on growing, and many actually opened during the next month (December) buds which had been previously formed. On the other hand, on May 10th, 1879, I moved about two dozen Rose trees from another county five or six hours' journey by rail. They all lived and grew well. I cut a bloom from one for a show, but cannot remember whether I actually placed it in my stand or not.

As to soil and climate, I have found that in a light soil and east-midland climate (which are the only conditions of which I have any experience) Roses do begin making fresh roots very soon after planting in an average November. I would therefore, under my conditions of soil and climate, always plant in November, and avoid "laying-in," for fear of breaking the new roots, as much as possible. In my light soil I can plant when others cannot because of the wet. I have been planting to-day (11th), and found the soil after the late heavy rains as friable as I could wish. I also expect that, as a rule, the ground is not only colder but also wetter in February than in November; but in a heavy soil, or the climate of "A NORTH COUNTRYMAN," there is, doubtless, much to be said for spring planting. If one could make sure of getting them, would it not in such a case be better to buy in the spring, and let the nurseryman run the risk of frost?—A. F. M.

[It is unsafe to defer purchasing Roses until the spring, as the best plants of many varieties are always sold in the autumn. We have more letters awaiting publication on the subject under discussion.]

THE DOMINO APPLE.

MANY inquiries have been made from time to time relative to this Apple, and we have endeavoured, but hitherto without success, to ascertain the origin of the Domino. We have received several letters on the subject, and also samples of fruit. We publish a section of one of the finest. It was grown in the garden of A. S. L. Melville, Esq., Longhills, Lincoln, and the following

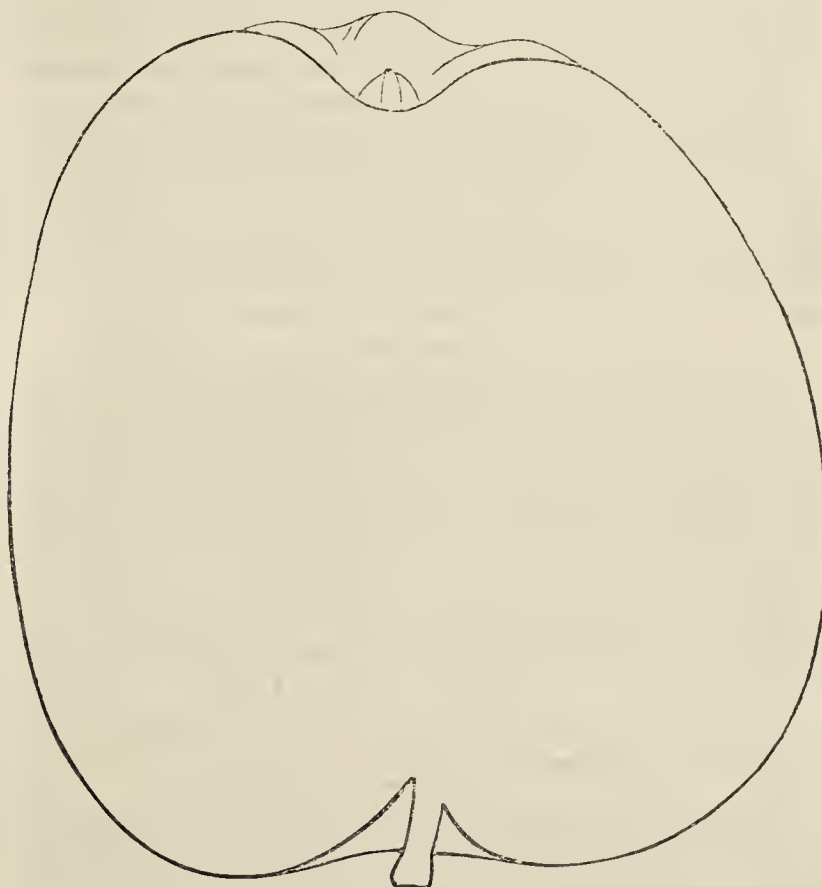


Fig. 74.—The Domino Apple.

note from the gardener, Mr. G. Picker, accompanied the parcel:—"I have made many inquiries respecting the origin of the Domino Apple, but no one to whom I have applied appears to know anything about it. It is our best early culinary Apple, and reached here by mistake—a mistake of the right sort. Mr. Melville some years ago ordered some fruit trees from Mr. Henry Merryweather of the Southwell Nurseries, and although this variety was not ordered it was sent, and on the error being pointed out to Mr. Merryweather he wrote and said Mr. Melville would not regret planting the Domino, and he was right. The cook does not care to use any other cooking Apple for the dining-room whilst the Domino can be had. Her reason for this is because it is the best and whitest-fleshed Apple that she ever cooked—time for cooking from fifteen to twenty minutes—and it breaks down in the dish well, but not too well; also it takes less sugar than Lord Suffield. As an early kitchen Apple I repeat it is the best of all here. The tree is a healthy and free grower, forming a good pyramid, and is a great bearer. It comes into use here the last week of August, and Lord Suffield the first week of September. I have seen Domino described as an October Apple, but with us it will

not keep sound until then. On the 4th of October I examined fruits that I had left for the purpose of knowing how long it would keep, and each fruit was dotted with dark patches that showed plainly through the skin, and the flesh had turned very soft. I may mention that we lifted the tree two years ago, and placed the roots nearer the surface. That may have caused the fruit to be a little earlier; but other trees in this neighbourhood prove that this is a very early Apple."

Our description of Domino is as follows:—A Codlin. Fruit large, somewhat cylindrical or blunt-conical in shape, with a prominent rib on one side, which makes it larger on that side of the axis, and consequently if measured through that diameter it is as wide as it is high. It has five more or less prominent ribs, which terminate in corresponding ridges round the eye. Skin of a uniform greenish yellow when ripe, and pale grass-green before it ripens, and covered with distinct russet dots, but no colour. Eye closed, set in a deep, angular, and irregular basin; tube long conical, inclining to funnel-shaped; stamens median. Stalk half an inch long, inserted by the side of a fleshy protuberance, which is generally well developed. Flesh yellowish white, soft, and juicy, with a mild acidity. Cells open, Codlin-like; cell-walls elliptical.

This is a very useful Apple, and is, we think, in the Chiswick collection. It belongs to the class of Lord Suffield, Golden Spire, and such early-bearing and prolific culinary varieties.

DESTROYING ANTS.

IN reply to "J. H. W." I may state that we have had plenty of ants in the vineries here. The method adopted to eradicate them is to find out their hiding place or home, and if it be among soil. When practicable remove the whole body containing ants and eggs to some distant exposed part of the garden where they will probably be picked up by birds. I need not say there will be numbers left behind, as I have seen them busy night and day. To capture those remaining procure a dead bird, or several to make short work of it, cut them open at the breast, and lay them where the ants frequent. Go round as often as it may be necessary. The birds will be often found covered with ants, when they should be immersed in a can of boiling water, and laid again in their runs.—C. WARDEN, *Clarendon*.

AT one time I was much troubled with ants in my Peach house, which were very destructive when the fruit was ripe. I tried treacle, which was of little or no use; I also used hot water, which killed what it touched, but I do not think that safe where the roots are inside and near the surface. I also tried a strong dose of hellebore, both liquid and the powder, but I found they only went to fresh quarters of the house. At last I tried some freshly slaked lime. I had some standing in a pot ready, and whenever I saw any ants about I gave them a good sprinkling; also where I found they made their nests I placed a quantity, and washed it in as well as I could. By a little perseverance I have entirely cleared the house of the insects, and I think if "J. H. W." will give the lime a good trial he will not be disappointed with the results. It is not so disagreeable to use as paraffin, nor so dangerous.—J. GILBERT.

A CORRESPONDENT of the Journal asks how to deal with the small ants which sometimes appear by thousands in gardens and houses. Mr. Newman strongly advised the following plan:—Dip lengths of stout twine or rope into a syrup made of coarse sugar, and lay these near the holes whence the ants issue, or in their favourite haunts. Upon these the ants will cluster thickly, and the strips taken up can then be plunged into boiling water.—J. R. S. C.

THE GREENHOUSE AND ITS INMATES. POPULAR FLOWERING PLANTS.

BIGNONIAS.

THESE are useful plants for training up rafters and pillars, and for covering walls inside greenhouses or conservatories. For small houses they are not quite suitable, but when room can be spared for their due development they are most acceptable. They should be planted out in good fibry loam and peat in equal proportions, with a little sand and broken bones and charcoal to keep the compost porous and open. The kinds ordinarily grown are *B. Chamberlainii*, *B. grandiflora*, *B. speciosa*, and *B. venusta*.

BOUVARDIAS.

These may be had in bloom at any time. Most people like to

have them in flower during winter, for they will bloom as freely and as satisfactorily at midwinter if a temperature of from 50° to 60° is maintained as at any other time. Where this cannot be afforded they may be prepared to flower late in summer or in autumn. Plants which were bought in autumn may be treated like a *Fuchsia* during winter and cut down in spring; afterwards they should be started and grown in a temperature of 60° until June, when they may be placed in cold frames. In spring, after the young shoots are a couple of inches long, they may be taken off with a heel and struck in bottom heat along with other cuttings, say on a hotbed. After the cuttings are rooted they will require potting off, and for this purpose fibry loam and leaf soil with a little sharp sand should be employed. After potting they should again be returned to the frame and plunged, keeping a genial top and bottom heat.

Potting and pinching must be attended to as may be necessary. Young plants may be placed in 5 or 6-inch pots the first year. After the pots are well filled with roots a little liquid manure should be given occasionally. To keep the plants dwarf and bushy they must be kept near the glass and repeatedly pinched. By June they may be placed into ordinary frames without bottom heat, and liberally ventilated during fine weather. Pinching must be discontinued early when early flowering is wanted, but in no case should the plants be pinched later than July. They must be transferred to their blooming quarters by the middle of September at the latest. They are subject to the attacks of different insects. Syringing or dipping in tobacco liquid may be occasionally resorted to as a preventive or check. These remarks apply equally to young and old plants; only old plants require more root room. The following kinds are all good:—*elegans*, *Hogarthii*, *Bridal Wreath*, *Queen of Roses*, *jasminoides*, *Vreelandii*, and, although not free-flowering, *B. Humboldtii corymbiflora*.

CALCEOLARIAS.

If seed was sown during July or later, and the young plants obtained pricked out, they should when large enough be potted and grown on in the cold frame. As long as the weather is so mild that frost can be kept out of the frames with the aid of mats, the plants should remain there, the frames being ventilated on all favourable occasions. They must be shifted before they are root-bound, this being important, until they are established in the pots in which they are required to flower. When they are removed to the greenhouse they should be placed in a light and cool position. Heat is their worst enemy, and after that aphides. Should the latter appear fumigation must be resorted to, or the plants will not thrive. Syringings of soapy water will prevent its appearance.

CINERARIAS.

These need similar treatment to the *Calceolarias*, only tobacco smoke injures and very little frost destroys them. Sponging may be necessary in order to keep down aphides.

TREE CARNATIONS.

Tree Carnations are beautiful plants for winter blooming. They are easily propagated by layering, or even by cuttings in spring, if these last are placed on a slight bottom heat. During summer they do better planted out than when kept on in pots. A compost of loam, cowdung, and sand suits them. They should be carefully lifted and potted in October, and placed for a few days in a shady position until new roots are produced.—J. H.

LIFTING PEACH TREES—SHALLOW v. DEEP BORDERS.

PROBABLY many of your readers will arrive at the conclusion that I have "caught a Tartar" in "A. B. C." (page 405), and perhaps I ought to be thankful for being "let down" in such a kindly manner. However, I venture to return to the subject, not because I am desirous of having the last word, but with the motive of righting myself in the estimation of my critic.

Relative to the disposition of the fertile surface soil, it does not follow that the whole of this was placed at the bottom of the border and out of the reach of the majority of the roots. On the contrary, at one end of the house the border, independent of the drainage, was found to be upwards of 3 feet in depth and the roots were very low. Now, we were not in a position to entirely lift the whole of the trees and materially change the depth of the border, neither would it have been wise to have done so owing to the age and size of the trees. Under the circumstances we did not attempt to bring all the roots preserved to the surface, the only plan being to bring them up so as to distribute them throughout the new soil to a depth of about 18 inches. In this manner the fertile surface soil was not entirely thrown away, neither did

it much encourage a downward tendency in the roots. It was not a question of making a new border; what we had to do was to make the most of or renovate the old one.

It appears "A. B. C." would have added to the drainage, so as to make the border more shallow, and in my opinion would thereby have greatly injured the border by over-draining. I preferred an extra foot of soil to one of drainage, but it does not necessarily follow that I advocate the formation of deep new borders for fruit trees. On the contrary, for some months past I had set myself to write upon the subject of forming both shallower and narrower borders, but "A. B. C." anticipated me; yet I may still publish my ideas on the subject.

Perhaps I was wrong in asserting there is a danger generally in lifting the trees annually. At the time I was thinking of our Peach houses, where I am confident under the circumstances it is both impracticable and unnecessary to lift annually. "A. B. C." must surely err in stating (page 405), "Lifting three trees in a house, say, 60 feet in length occupies no more time than top-dressing the border." His must be a case of partial lifting. If he does the same as Mr. Bardney—viz., digs up his trees and transplants, he is favoured with most excellent labourers. That Mr. Bardney is most successful in his practice I can and have borne testimony, but I also happen to know he is fortunate in having an unlimited supply of water, and which can be applied at a minimum cost in the shape of labour. What if others imitated his practice of digging up without being either in a position to be able at all times to give abundance of moisture to the roots? In this case it would be to a certain extent risky, as if the necessarily much-reduced balls became dry, the same as frequently happens with newly potted plants under the same conditions, a partial failure must inevitably result.

I repeat, annual lifting is quite unnecessary and may be risky. I hold it is a better plan to lift a few trees every season rather than lift all every third year, and to trust to the annual top-dressings and abundance of moisture at all times to keep the roots near the surface. The whole of our borders will shortly have the surface soil cleared off so as to bare the roots, and on these will be disposed a top-dressing of loam, short manure, and wood ashes. This during next season will be thoroughly taken possession of by the roots, and I have every confidence in securing valuable crops of fruits from all the trees.

The Vine border, which it will be remembered I stated is composed exclusively of brick ends, mortar rubbish, bones, and charcoal, was formed by Mr. Challis, the very able gardener at Wilton House near Salisbury. It is one out of several formed in low forcing houses, which are planted permanently in preference to fruiting Vines in pots, this preventing hard forcing in the larger vineries. The Vines in this border have necessarily to be more frequently watered, and, as before stated, look even more vigorous than, and are said to be quite as profitable as, those planted in the usual compost. Beyond this at present I can say but little, as my visit was unfortunately of much too short duration. I alluded to the curiously constructed Vine border in order to strengthen my argument with regard to the employment of what "A. B. C." terms rubbish in the composition of Peach borders, as there does not appear to be a marked difference in the respective requirements of Vines and Peach trees. Shallow well-drained borders such as "A. B. C." prefers, coupled with annual lifting, neither require root-formers nor aërating, but as our case is totally different we prefer not to separate the brick ends from the mortar rubbish.—W. IGGULDEN.

[The difference between our correspondents arises entirely from the differing conditions of the trees and soil. While those in charge of "A. B. C." and Mr. Bardney may be lifted without any risk whatever, Mr. Iggulden would have acted unwisely to have wholly uprooted the old neglected specimens which he is endeavouring to renovate. Having seen all the trees referred to we have an advantage over our contributors, both of whom are excellent cultivators, and are thus able to settle the point at issue.]

CULTURE OF THE TUBEROSE.

THERE are several varieties of Tuberose, such as the pale yellow, white, and double white African and American; it is, however, unnecessary to enter into details as to these, for we have grown all and found the same treatment suitable for each variety. To maintain a long succession of bloom it is best to procure bulbs at different seasons, say early in autumn and again in spring. There is no difficulty in getting these to flower; in fact, their treatment is very simple indeed. Pot them as soon as received in a 32-size pot, placing three or four bulbs in each pot, according to the size of the bulbs, or two or three in a 48-pot. The soil should consist of good turfy loam, leaf soil, and sand, pressing it down firmly

round the bulbs. After the pots are full of roots watering with liquid manure is an advantage; a small quantity of guano placed in the water we find very beneficial. Pot the bulbs in the above soil, and plunge in ashes in a cold frame. After being in this position for a few weeks they may be placed in bottom heat if desired to flower at once, or they may be introduced in batches so as to prolong the flowering season. The principal point to observe is not to give the tops too much heat, or they will be sure to draw up weakly and prove almost worthless. A brisk bottom heat of 65° or 70°, with plenty of ventilation night and day, will soon start all the bulbs into flower.

By keeping them in different temperatures the early autumn batch may be made to last till the early spring ones succeed them, the treatment being the same. Keep them in frames till growth commences, then plunge them in bottom heat, having the roots warm and the tops cool. They may be placed out of doors when all danger of frost is past, and by so doing a long succession of bloom may be obtained. They will grow and flower freely in an ordinary greenhouse after the flower-stems appear.—J. SMITH, *Mentmore*.



AT a general meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday at South Kensington, Colonel R. Trevor Clarke in the chair, the following candidates were duly elected Fellows—viz., J. E. Lewis Boulton; Adhae Singh Gom, Assist.-Commissioner, Central Provinces, India; James Loomes, and William Warren.

— THE PROPOSED PINK SHOW is postponed for the present on account of the exceeding paucity of cultivators who might be counted on to exhibit Pinks in London in June, 1883. The promoters of the Exhibition held a brief conference at South Kensington on Tuesday last, and agreed that while there would be no difficulty in obtaining the needful funds, there might be great difficulty in obtaining the needful flowers. It is satisfactory to hear that considerable interest in the Pink has been aroused, and it may be found an agreeable task to organise a show for 1884.

— WE are informed that there is a very fine display of CHRYSANTHEMUMS IN THE PINE APPLE NURSERY, including many varieties that have not hitherto been seen in bloom in this country.

— THE handsome specimen of MASDEVALLIA TOVARENSIS shown last week at the Brixton Chrysanthemum Show by Mr. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, proved the great value of this species admirably, as it had about five dozen of its pure white flowers, though growing in a pot of moderate size—about 6 inches in diameter. It is unquestionably the freest of all the Masdevallias, and it is surprising what small pieces will produce flowers. When associated with some of the richer-coloured species, such as M. Lindeni or M. Harryana, it has an excellent effect. The flowers are also useful for bouquets and buttonholes.

— MR. J. CLARKE sends us the following note on the NEW PEA GENERAL GARFIELD:—"A valuable addition to our list of new Peas will be found in Suttons' General Garfield, the haulm being laden with handsome pods containing eight or ten large peas in each pod of excellent quality. It will prove a fine Pea for the exhibition table, while its hardy constitution enables it to a certain degree to resist the mildew."

— A CORRESPONDENT writes as follows relative to MIXING FLOWERS:—"We have a house filled with white and yellow Chrysanthemums—Mrs. G. Rundle and Mr. G. Glenny—and the effect far surpasses any mixture of colours I have seen. A house

alongside is filled with Zonal Pelargoniums in various shades from white and pink to deep crimson, and the effect at this season is rich and glowing; but for chaste effectiveness I greatly prefer the mass of pure white and soft yellow. We all admire the meadows in early summer besprinkled with Buttercups and Daisies, but do not always follow Nature in these matters. The truth is, we like to get together so many kinds of particular flowers that we often secure mere prettiness in effect when we might either have something strong in simple colouring, as in the case of our Chrysanthemums, striking in simplicity. It really cannot be too often insisted on that rigorous selection not only gives the gardener the best returns for his labour, but lightens his work to a very considerable extent. Amateurs especially have a strong desire to get everything into their gardens they can lay hands on, nor can it be denied that many gardeners have the same desire to multiply their floral dependants. It may be safely set down as a truism that he who grows the fewest kinds of flowers, and these few again well selected as to variety, will be always better prepared to meet sudden or continued demands than he who in trying to grow everything, has only a little of anything, and that little is quickly used."

— AMONGST NOVELTIES IN VEGETABLES now being distributed by Mr. Laxton we find, amongst others in the list, two new Peas—*Evolution*, described as "the largest and finest-podded Pea yet issued," and *William Hurst*, a prolific blue wrinkled variety ripening with *Sangster's No. 1*; also a new Runner Bean—*The Czar*, which is stated as producing pods 14 inches long by $1\frac{1}{2}$ inch wide; a new Longpod Bean, *John Harrison*, the result of a cross between the *Mazagan* and *Aquadulce*, the finest type of the *Seville Bean*; the *Early Purple Argenteuil Asparagus*, and *The Schoolmaster Apple*, a variety of great promise that has been certificated by the Royal Horticultural Society.

— GARDENING APPOINTMENT.—Mr. John Miller, recently of Clumber, has been appointed head gardener to R. G. Hargreaves, Esq., Cuffnells, Lyndhurst, Hants.

— A GRANTHAM correspondent sends us flowers of *CHRYSANTHEMUM SEGETUM*, and observes:—"This beautiful little yellow flower grows in a field about three miles from Grantham. I consider it very pretty. I have had some in water for three weeks, and they now look as fresh as when I first gathered them." The *Corn Marigold*, as this species of *Chrysanthemum* is popularly named, is one of the most attractive of our native plants, and in some gardens it is cultivated for the sake of its rich golden flowers. A double form is also included in some gardens.

— M. LINDEN, the Director of the *COMPAGNIE CONTINENTALE D'HORTICULTURE*, informs us that they intend opening in their grounds, on the occasion of the great Horticultural Exhibition to be held in Ghent next April, a special exhibition of their products. When the new conservatory and greenhouses, which are in course of construction, are finished, the nursery will contain upwards of 100,000 square feet of glass, not counting the frame surface, heated by over 8 kilometres (five miles) of piping. A new and principal entrance by the *Boulevard de la Coupure* will put the establishment in almost immediate communication with the casino, where the International Show will be held.

— THE melancholy tidings of the sudden death of Mr. F. FAULKNER, gardener to F. R. Leyland, Esq., Woolton Hall, Liverpool, which occurred on the evening of the 7th instant, caused quite a sensation amongst Chrysanthemum growers in the metropolitan district. Mr. Faulkner was one of the three winners of the twenty-five-guinea challenge cup, offered by the Vice-Presidents of the Kingston Chrysanthemum Society, the contest for the final possession of which has been fixed for this day (Thursday), the other competitors being Mr. Tunnington of Liverpool and Mr.

Harding of Putney. Mr. Faulkner was a good gardener and successful exhibitor of plants, flowers, and fruit at some of the leading shows in the kingdom, and a career of great promise has thus terminated in a painfully unexpected manner. He was, we believe, a native of Tooting or the neighbourhood, where he was well known and highly respected. He had every appearance of being a very strong and healthy man about forty years of age, and on that account his death has caused the greater surprise amongst his numerous friends. We regret exceedingly to learn that he has left a family of seven children, all under fourteen years of age. Great sympathy is expressed with the widow in her bereavement, and we doubt not this will be shown in a substantial manner by the friends and acquaintances of the deceased, for there must be many who would be glad to aid, if aid is needed, in such a melancholy case as this. We believe Mr. Leyland will place his blooms, grown by Mr. Faulkner, in competition at Kingston.

— THE following paragraph on RAILWAY GARDENING, which we have seen before, has been sent to us for our opinion thereon:—"If our railway companies would employ a forester and a gardener or two, they might utilise their thousands of acres of waste land for crops, grass, fruit trees, and so on, with profit. In many parts of Belgium the land has been planted with fruit trees and other things several years, and in Wurtemberg, for about twelve years past, a forester has had charge of the lands. He pays particular attention to planting the slopes of excavations and embankments to prevent washing and slipping, grows quick fences, and, where practicable, fruit and timber trees. The gardens at the stations are largely devoted to fruit, and so made useful and ornamental at once. A profit of about 14s. an acre has, it is said, been made for the past five years on the ground so utilised. Why should it not be done in England?" We add: because more than half the land on the embankments is worthless—barren rocks or inert subsoil—all the best material having been removed in excavation; besides, a much greater inducement than "14s. an acre" must be offered before such work will be attempted on any large scale in this country. There is plenty to do in reclaiming waste land and increasing the productiveness of thousands of acres already reclaimed without at present engaging in enterprises of the nature suggested.

— THE *American Cultivator* states that Erastus Corning of New York owns a \$130,000 collection of ORCHIDS, and Jay Gould has a collection worth \$60,000, in English money about £26,000 and £12,000 respectively.

— "VICK'S ILLUSTRATED MAGAZINE" recently described a NEW AMERICAN STRAWBERRY named JAMES VICK in the following terms:—"The points of merit claimed for the James Vick are briefly these: 1, Fine quality, unusual vigour, and hermaphrodite or perfect blossoms. 2, Colour, form, and firmness of berry, which approach the ideal. No white tips, no coxcombs. 3, Ability to stand on the vines a week after ripening without becoming soft or rotting, or losing quality or much lustre. Instead of softening it shrinks a trifle, and becomes firmer than when first ripe. 4, Uniformly large size, and productiveness unequalled by any other variety. One hundred and eighty berries were counted on one average plant, and from one row about 100 feet long nearly two bushels of berries were gathered. How well this variety will sustain the claims made for it is yet to be proved, and possibly it might have been better to have given it another season's trial before making it known, but we respect the judgment of those having it in charge, and trust it may prove to be the acquisition that it now promises." Unfortunately American Strawberries have not been found to succeed in England.

— As affording a striking contrast between the insect pests

of this and warmer climates, the following in reference to LOCUSTS IN CYPRUS, from the *Colonies and India*, is worthy of note:—

"A regular campaign has been carried on against the locusts in Cyprus, the reward offered by the Government of Cyprus of one piastre per oke, or about a halfpenny for every pound of eggs—subsequently raised, however, to three times that sum as the eggs became scarcer—having so stimulated the natural desire of the people to rid themselves of this pest, that the enormous amount of 1320½ tons of eggs were collected in seven months. Besides the eggs vast quantities of locusts were caught by means of screens and traps placed all over the island. Many of these insects were got rid of by burning them in great heaps, and the eggs were probably destroyed in the same way; but it would surely be worth while for the Government, which pays a sum of £30,000 or £40,000 in the shape of 'head money,' to get some direct return for this expenditure, or enable the people to derive a further advantage from the destruction of the insects by devising some means of utilising the dead insects. At the other end of the Mediterranean and in the Bay of Biscay a paste made from the bodies of Algerian locusts is used with great success in the sardine fishery, and it is probable that the same bait might be used in other fisheries as well. The locust eggs could, perhaps, be still more easily utilised in the same way. All that would be necessary would be to kill the eggs by placing them in boiling water, and if then placed in bags, bottles, or casks they would make an excellent bait for shore fishing. By carrying boatloads of their spoil out to sea the locust-hunters might develop an important fishing industry round the coasts of Cyprus."

CULTURE OF HARDY PLANTS.

It is pleasing to find, that although the Rev. Wolley Dod is an ardent lover of hardy plants, he does not recommend their use without at the same time assuring his readers that, in order to have them do well, constant attention is required. My experience has been that there is more work in connection with these in keeping them in good order, especially from July to November, than with ordinary bedding plants. This year I saw a large flower garden of ordinary bedding plants, and some large borders of hardy plants managed with a minimum of labour, and the bedding plants had much the best of it in effect. There had been no time to stake and tie plants as they required it, nor to remove decayed flower stems; consequently in September, when the tender plants were glowing, the hardy flowers were comparatively wild.

As I find it a good system periodically to lift hardy plants and retrench the borders and replant young plants instead of the older plants, and have recommended this system, I will give a short reply to your correspondent's statement that "this is a bad plan." Our plan is to have strong rooted plants ready of those which are to be thrown away, and before commencing to trench the borders condemned plants are first cleared off; then the borders are manured; then as the ground is turned all bulbous plants are lifted carefully and set back into their old positions, or if too large divided and replanted as smaller clumps. Your readers may be assured that if properly performed the borders will be much better the first year than they will be the third, as it always happens, at least with us, that notwithstanding surface dressings the borders are never so fine after the second year.

With regard to Phloxes, the simplest way to increase these is to divide the plants now and replant at once. Our Phlox beds always receive a dressing from 6 to 9 inches thick of manure, and with three to six shoots left to each plant we have few flowers to rival a bed of these. Mr. Wolley Dod's plea for "real cultivation," as he calls it, is worth the consideration of all. Starved flowers afford no pleasure.—B.

SCRAPS ABOUT FRUIT.

PEASGOOD'S NONSUCH APPLE.—Your correspondent, "J. W." (page 364), has made a slight mistake in reference to Lady Henniker Apple. The variety to which he refers is Peasgood's Nonsuch. I have not yet fruited Lady Henniker Apple, but from specimens which I have seen I should say it partakes more of the Codlin type, while Peasgood's Nonsuch is evidently nearly related to Blenheim Orange. Peasgood's Nonsuch is certainly very handsome, and when it succeeds it is a most desirable variety to grow. My own experience of it is very limited, and I should be glad if some of your readers who grow this Apple would state their experience of it as a free-fruited variety. It is now some years since Messrs. Brown of Stamford distributed this variety, so that there should be plenty of bearing trees in the country.—J. SMITH, *Mentmore*.

SOLDAT LABOUREUR PEAR.—In reply to the inquiry of your

correspondent, "J. E." in the last number of your Journal (page 404) I beg to state that I have two trees of Soldat Laboureur, one of the Pears about which he asks for information, which I had many years ago from Mr. T. Rivers' nursery under the double name of Soldat Laboureur or Orpheline d'Engheim. It was there described in his list as "very productive and of the highest excellence," and so it has fully proved with me until the last two or three years, when it ceased to bear well. This year it has resumed its character and borne a good crop. It is of medium size, coming in about Christmas, and in quality most excellent.—C. P., *Herts*.

MARIE GUISSÉ PEAR.—A correspondent recently desired information about this, amongst other Pears, that are not commonly grown in gardens. Marie Guisse I had from Belgium a dozen years ago, but it has not given satisfaction, the fruits often failing to ripen, or at least to develop the good qualities that this variety is reputed to possess. The fruit is large, uneven, and of a brownish tint, and when in good condition is juicy and pleasantly flavoured. But in the north, at least in Yorkshire, it is not by any means a Pear to be depended on, although it may succeed better in more favoured localities.—M. D.

DOUBLE CROP OF PLUMS.—In answer to your correspondent on page 427, we have here some young pyramids of Victoria that bore two crops this year. In the second crop the fruit was not so large as the first, but they were well coloured, and proved useful for kitchen purposes. This is the first time that I have known Plums bear the second time and bring them to perfection.—G. T.

APPLES FOR THE NORTH.—I observe (page 424) Mr. Wither- spoon strongly recommends as a suitable Apple to plant in the north of England and Scotland a sort called "Ringer." Can he or any of your correspondents tell the difference, if any, between Ringer and variety largely grown in the west of Scotland called Tom Montgomery? It will also be interesting to know something about the origin of Ringer. Tom Montgomery is an old sort. However, there were large trees of it in my father's garden more than thirty years ago. I have not had an opportunity of comparing Ringer with Tom Montgomery, but, judging from memory both of the tree and fruit, I am strongly of opinion that they are the same.—J. MACINDOE.

ROYAL HORTICULTURAL SOCIETY.

NOVEMBER 14TH.

A LARGE and interesting meeting was held on Tuesday last, Pelargoniums, Chrysanthemums, and the vegetables in competition for special prize forming the chief features.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. A bronze medal was awarded for four extremely handsome Smooth Cayenne Pine Apples from Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, which weighed 29 lbs. 4 ozs., the pips large and eight or nine deep. Mr. Horley, Toddington, Dunstable, sent some fine Naseby Mammoth Onions and several seedling Apples. Mr. T. Laxton, Bedford, sent a seedling Pear something like Beurré Diel. Mr. Nelson, Dunmore House, Stanwell, near Staines, sent six fruits of a seedling Apple named Nugget. Mr. C. Ross exhibited tubers of his new Potato termed Rival, even and clean, which was referred to Chiswick for trial. Messrs. Downie & Laird, Edinburgh, sent a seedling black Grape with large berries, juicy, and of good flavour. The Committee considered it a promising Grape, and desired to see it in January. Messrs. Carter & Co., High Holborn, exhibited their new Golden Queen Onion. A letter of thanks was awarded to Mr. E. Pond, The Vineries, Jersey, for some fine samples of his Giant Red Shallots. Mr. J. Tilley, Lincoln Road East, Peterborough, had a dish of Peter Pippin Apples. Mr. J. T. Miles, The Gardens, Wycombe Abbey, sent some fine samples of The Lyon Leek, for which a letter of thanks was awarded. Three bunches of Alnwick Seedling were sent from Chiswick, the berries of good size and beautifully coloured, for which a cultural commendation was awarded, Gros Colman also being well shown. Messrs. Saltmarsh & Son, Chelmsford, exhibited a dish of their new Apple The Queen, large, and of fine colour. Mr. Gandy, Maidstone, sent a dish of Loddington Apples. Mr. C. Roberts, The Gardens, Highfield Hall, sent a fine cone of Encephalartos horridus. Mr. C. Tyler, The Gardens, Shelton Abbey, had a scarlet-fleshed Melon named Shelton Abbey, of moderate size and well netted, but of poor flavour.

Messrs. Sutton & Sons, Reading, exhibited a very large collection of Potatoes, Kales, Cabbages, and other vegetables in very fine condition, and occupying one side of the vestibule. Messrs. James Veitch & Sons, Chelsea, contributed a number of Curled Kales and Endives, the latter including the White Curled, Green Curled, Picpus, Moss Curled, Hardy Winter, and Fraser's Broad-leaved. A collection of Shallots was sent from the Society's gardens, comprising the Russian, Exhibition, New Russian, Large Russian, Small Red, Large Brown, and Large Red.

FLORAL COMMITTEE.—George F. Wilson, Esq., in the chair. Messrs. H. Cannell & Sons, Swanley, Kent, staged a fine group of Zonal Pelargoniums, consisting chiefly of the rich scarlet Henry Jacoby and the Salmon Vesuvius Surprise, the group being margined with small plants of the variegated Silver Gem Pelargonium, a neat dwarf variety, and Adiantums. In addition to the plants a large number of single and double Zonal Pelargoniums and Salvias were shown from Swanley, and greatly admired. One stand of the deep blue Salvia Pitcheri and the slightly lighter S. angustifolia, arranged with flowers of Heliotrope White Lady, was charming, the contrast being most striking. The single Pelargoniums were represented by trusses of extraordinary size, some having over thirty blooms. The best varieties were Eureka, white; Edith George, pink with a white eye; Attala, large bright scarlet; Paul Bauer, deep rose; Mrs. Strutt, pale pink, large; Dr. Orton, dark scarlet; and Jean Ill, rich rose. Double varieties were also admirably represented. Besides the Salvias already mentioned the scarlet S. rutilans and Bruanti splendens, the scarlet and white Mons. Isanchon, and the rich purple Hoveyi were shown. Several new Chrysanthemums, such as La Vierge, Perle des Blanches, and Dupont de l'Enre, also the older and rich King of Crismons, were notable. A medal was recommended for this handsome collection.

Mr. R. Clark, Twickenham, sent a collection of extremely well-grown Cyclamens, white, purple, and crimson, the flowers being distinguished by their size and breadth of petals. A medal was awarded for this group. Mr. B. S. Williams, Upper Holloway, had a small group of choice Orchids, including a plant of the soft purplish Pleione præcox; a plant of Odontoglossum Alexandræ virginalis with large pure white flowers, the lip dashed with yellow; specimens of the small yellow-flowered Odontoglossum pardinum, the new Cypripedium Spicerianum, a pretty little example of the dwarf Nepenthes ampullacea vittata, and a large panful of Dendrobium superbiens bearing six large racemes of rosy-purple blooms. Messrs. Jackson & Son, Kingston, sent a stand of eight seedling Japanese Chrysanthemums, three blooms of each, comprising the following:—Madame Brun, compact blooms, pale lilac; Perle des Blanches, white, loose, of the Fair Maid of Guernsey type; M. Desbrenx, narrow, bronzy-brown twisted florets, the margins revolute, a compact striking flower; Japonaise, quilled lilac florets; F. A. Davis, deep maroon narrow florets; Safrano, yellowish; and Nuit d'Automne, rosy-crimson, under side of narrow twisted florets whitish. A new Pompon named La Purité, with neatly formed pure white flowers, was also shown.

Messrs. J. Veitch & Sons, Chelsea, had a group of new Chrysanthemums, raised by Alfred Salter, Esq., amongst which were the following:—Rex Rubrorum, Japanese, deep maroon, neat flower, free; La Candeur, apparently intermediate between the Japanese and the incurved types, pure white, broad florets; Lord Beaconsfield, Japanese, florets with margin revolute, full, large, compact, upper surface claret-purple, lower surface yellowish; Ringleader, quilled, lilac-purple, neat; Comet, Japanese, flat florets, deep orange, with bronze tinge, very free; and Duchess of Albany, large Japanese, flat florets, loose, creamy white. Messrs. Veitch also exhibited a group of new plants, the greenhouse hybrid Rhododendrons largely predominating, and including representatives of their recent handsome varieties. Other noted plants were Bouvardia Priory Beauty, which has good trusses of pale pink flowers; Begonia socotrana, and a hybrid between that and B. insignis, termed Autumn Rose, which resembled the former chiefly in the foliage and the latter parent in the flowers and stronger habit; Impatiens Sultani, the neat Campanula-like Tachadenus carinatus, and a rich scarlet Carnation named Lucifer. Mr. Higgins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, contributed a group of remarkably fine single and double Zonal Pelargoniums, well-grown specimens, flowering most profusely. This fine group well showed the value of these plants for winter flowering, and well merited the medal awarded for it. Mr. George, Putney Heath, exhibited a seedling Carnation named Sir Garnet Wolseley, the blooms being of a dark scarlet colour, full, and of good form.

Mr. C. Green, gardener to Sir G. Macleay, Pendell Court, Bletchingley, was awarded a vote of thanks for flowering sprays of Cestrum aurantiacum, the orange-coloured Habrothamnus-like plant; Amicia zygomeris, a Leguminous plant, with short axillary racemes of large bright yellow flowers; and Fuchsia arborescens, with small purplish-crimson flowers, produced in large loose corymbs, a very striking and pretty species. Mr. Z. Stevens, The Gardens, Trentham Court, sent about twenty plants of Odontoglossum Alexandræ, representing extremely fine varieties, and flowering most freely, some heavy spikes of twelve to fourteen blooms, pure white, spotted, or flushed with purple. A vote of thanks was awarded to Mr. A. Waterer, Knap Hill, Woking, for a group of seedling Golden Yews, chiefly of fastigiata type. Some very handsome Golden Cypressess were also shown. A group of Bouvardias and Salvias were sent from Chiswick, and included good examples of the white double Bouvardia Alfred Nenner, B. elegans, Salvia Pitcheri, and S. Bethelli.

First-class certificates were awarded for the following plants:—

Odontoglossum crispum, var. *Dormannianum*.—This was shown by Mr. Coningsby, gardener to C. Dorman, Esq., The Firs, Laurie Park, Sydenham. It is a very handsome variety, with neatly formed blooms heavily barred and blotched with chocolate, the lip being also stained with yellow.

Salvia Hoveyi (Cannell).—Very distinct, the corolla 2 inches long,

deep rich purple, the calyx almost black. They are produced in dense terminal spikes, the flowers being slightly pendulous.

Chrysanthemum Lord Wolseley.—This is a sport from Prince Alfred, shown by Mr. Orchard, gardener to J. Galsworthy, Esq., Coombe Leigh, Kingston. It resembles the parent in general form, but is larger, of more substance, and of a bronzy hue.

Chrysanthemum Crimson King (Dixon & Co.).—A pretty reflexed variety with compact blooms, the florets comparatively short, flat, deep red, almost maroon. Very distinct.

Odontoglossum crispum Wilsonii (Stevens).—Flowers very large; petals broad, fringed, with a few chocolate spots in sepals and lip.

Pleione præcox (Williams).—A charming species, with lilac-purple sepals and petals, a white-fringed lip dashed with yellow in the centre. Very free.

Odontoglossum Alexandræ virginalis (Williams).—Flowers large, beautifully formed; broad petals, pure white, lip blotched with yellow. A very handsome variety.

Chrysanthemum M. Desbrenx (Jackson).—A large full bloom of the Japanese type; the florets narrow, margins revolute, of a rich bronzy brown hue. Very distinct and handsome.

Chrysanthemum F. A. Davis (Jackson).—A Japanese variety with narrow florets, the margins revolute, and deep rich maroon in colour.

Pelargonium Albert Crousse (Little).—One of the Ivy-leaved varieties of strong compact habit; flowers large, double, of a rose-scarlet colour.

Pelargonium Aglaia (Little).—A double Zonal with close trusses of purplish crimson-coloured flowers, very distinct in shade.

SPECIAL PRIZES.

Messrs. Sutton & Sons, Reading, offered a number of prizes for vegetables, and the competition was extremely keen, the exhibits being of excellent quality. For a collection of vegetables, twelve kinds, Mr. J. Austen, gardener to Sir G. Smythe, Bart., Ashton Court, Bristol, secured the chief prize with an even collection of clean handsome samples of Hatbaway's Excelsior Tomatoes, Canadian Wonder Beans, Improved Reading Onions, Leicester Red Celery, White Stone Turnips, Telegraph Cucumbers, Veitch's Autumn Giant Cauliflowers, Dell's Crimson Beet, Imported Brussels Sprouts, Hollow-crowned Parsnips, and Lapstone Kidney Potatoes. Mr. A. Miller, gardener to W. H. Long, Esq., M.P., Rood Ashton Park, Trowbridge, Wilts, was second; Mr. J. Haines, gardener to the Earl of Radnor, Coleshill, House, Highworth, a very close third; Mr. R. Phillips, The Deodars, Meopham, Kent, was a good fourth; and Mr. G. Summers, gardener to the Earl of Scarborough, Sandbeck Park, Rotherham, was fifth. There were nine entries.

For twelve Improved Reading Onions Mr. Haines, Mr. Spottiswood, The Gardens, Queen's Park, Brighton; Mr. Austen and Mr. C. Osman, gardener, the South Metropolitan Schools, Sutton, were the prizetakers, showing very fine examples in a class of fourteen competitors. For nine tubers each of Woodstock Kidney and Reading Hero Messrs. Miller, Ross, F. Millen, The Gardens, Hamstead Park, Newbury, and J. Haines won the prizes, fine collections being staged.

For nine tubers each of Suttons' Early Border and Prizetaker Potatoes Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, was first; Mr. Austin second; Mr. Emson, Dorchester, third; and Mr. Ward, gardener to the Earl of Radnor, Longford Castle, Salisbury, was fourth in a class of six competitors. For the same number of tubers of Suttons' Reading Russet and Fiftyfold Potatoes Mr. Finlay, gardener to Colonel North, Wroxton Abbey, Banbury, took the lead; followed by Mr. Donaldson, The Gardens, Keith Hall, Inverurie, N.B.; Mr. Haines, and Mr. F. Millen, gardener to J. T. Friend, Esq., Northdown, Kent, in a class of ten exhibitors. For the same number of Magnum Bonum and First and Best Potatoes Messrs. Donaldson, W. Finlay, F. Millen, and C. Ross won the honours in a class of seven competitors.

Messrs. Webb & Sons of Stourbridge also offered prizes for twelve Improved Schoolmaster Potatoes, seven dishes being staged. Mr. C. W. Howard, Bridge, Canterbury; C. Osman, and R. Dean, Ranelagh Road, Ealing, were the prizetakers, all showing neat samples.

SCIENTIFIC COMMITTEE.—Dr. M. T. Masters in the chair. *Magnolia Campbellii*.—Mr. Mangles described the very fine specimen of this tree at Lakelands, near Cork, on the grounds of Mr. W. H. Crawford. The height was 33 feet, and circumference of the stem 33 inches. This species has never flowered in Europe. It grew against a wall with the late Mr. Gorey at Edinburgh. It was supposed that the warmth of the climate is insufficient to enable it to flower. It was suggested that attempts should be made by grafting to induce it to blossom. Remarkably fine Magnoliæ were described by Dr. Low at Milan. Others at Nantes were destroyed in the late severe winter.

Carlina acanthifolia.—Dr. Low exhibited dried specimens of this large dwarf Thistle of the continent. He also showed apparently a wild form of the garden Artichoke, the bracts being particularly small.

Vitis gongyloides.—Mr. Lynch brought fine specimens of this curious Vine from the Botanic Garden at Cambridge. The "tubers" on the stems are terminal, disarticulate with the axillary bud, and may be kept a twelvemonth and will then germinate. In one case in consequence of the end of the bough having been removed the swelling took place at the base of the internode.

Agave Victoria Regina.—Dr. Masters exhibited photographs of the

plant in blossom in the Botanic Garden of Cambridge, U.S.A., where it threw up a gigantic spike of blossoms; also a drawing of *A. bracteata* from the same locality.

Chrysanthemum Sport.—Dr. Masters also showed a blossom half white and half yellow, the two kinds of florets equally dividing the head. Remarks were made upon the way to obtain large flowers, there being not only the terminal one in point of position, but lateral ones of a certain period of development.

Friesia odorata and *Babiana rubrocyanea* (?) were sent by the Hon. and Rev. J. T. Boscawen from Cornwall. The latter comes from South Africa.

Glass with Pattern.—Mr. J. Clarke of Snakeleys, Uxbridge, sent a pane of glass from a lean-to house which had been whitewashed. The whitewash had partly disappeared, leaving a peculiar pattern on the glass. No explanation could be suggested as to the cause.

Proliferous and Monstrous Flowers.—The Rev. G. Henslow exhibited the following specimens:—Proliferous states (*Rhododendron balsamiflorum aureum*, from Mr. Veitch), with flowers proceeding from the centre of the pistil. The latter organ had dehiscent longitudinally, and a cluster of malformed orange-coloured petals protruded from the orifice. Mr. Henslow observed that every flower on one bush in his garden of a common pink kind had during the last season formed a blossom within the pistil, though in this instance the flowers so formed had perfect as well as petaloid stamens. In every case the flowers sprang from the base of the ovary. Carnation with a secondary flower proceeding from within the calyx tube (received from Miss Owen, Gorey). Blue Bell, each flower being elevated on a long pedicel (2 inches), and bearing secondary flowers from the axils of the perianth leaves. In one case a normal flower was replaced by a raceme. Solomon's Seal with leafy racemes occupying the position of each flower.

Monstrous Flowers—Pistillody of Calyx.—Violets, virescent in part or entirely, with sepals abortively ovuliferous, and the petals laciniated; in some instances purple, in others green. The sepals bore papilliform structures on margins and midribs resembling rudimentary ovules, the only recorded instance of ovuliferous sepals being one of the common garden Pea, figured and described in *Gard. Chron.*, 1866, p. 897. *Pistillody of Stamens*.—He exhibited drawings illustrating various stages of ovuliferous stamens in the Alpine Poppy, (received from Miss Owen). Syngenesism in *Diploxys tenuifolia*.—In this case the anthers of every flower cohered laterally, so that the pollen could not escape. The consequence was that in no case did a flower set seed, the silicles remaining small and abortive. Received from Mr. Marshall of Ely.

Placental Protrusion in Begonias.—In these flowers the placentas bearing many ovules had protruded at the summit of the ovary, apparently from an hypertrophied condition of the former (from Miss Owen). Movement of pedicels in *Meconopsis nepalensis* (received from Miss Owen) illustrating observations recorded in the *Gard. Chron.*, July 10th, 1882, p. 767. Mr. Henslow suggested that this prevented the seeds from being dropped close to the parent plant, as the fruit dehisces at the base of the style, as in *Papaver*, below the stigmas. In both cases the pod is held erect, but when a capsule is pendulous, as in *Campanula*, the pores are at the base, so that in every case the plant is enabled to scatter its seed as it is swayed by the wind.

Fasciated Stems.—A remarkable example of *Carduus lanceolatus* some 3 feet in length and 6 inches broad (received from Mr. Marshall of Ely), a peculiarity of which was that it had appeared for four years successively in this condition; and another of *Lilium auratum*.

Enations on Yucca.—Leaves of *Yucca filamentosa* (?) with peculiar horn-like protuberances of about half an inch long, probably caused by some insect (from Miss Owen).

LECTURE.—The Rev. G. Henslow took the *Chrysanthemum* as the subject of his lecture. This plant is referable to two distinct species—*C. indicum*, *L.*, and *C. sinense*, *Sab.*—though until Mr. Sabine so determined them in 1823 they had been confounded. The former appears to have been in the Chelsea Gardens in 1764, but was lost. The latter was first introduced in England in 1790, though called and figured as *C. indicum* in the "Botanical Magazine," No. 327, being supposed to be only an enlarged cultivated variety. The first-named species is with very little doubt the origin of all the "Pompons." It was reintroduced by Mr. Fortune in 1846 as the "Chusan Daisy" or "Minimum," and now numbers probably more than one hundred varieties. With regard to the large kind, or *C. sinense*, the first notice of its cultivation in Europe was by Breynius, who describes six kinds in Holland in 1688; but it is strange that they all disappeared, and were only reintroduced one hundred years afterwards into Europe by M. Blanchard in 1789. Many varieties had been long cultivated in China and Japan, as Kœmpfer in 1712 observes; while Rumphius in his "Hort. Amer." notices that they were grown in 1745 in India, having been brought from China.

The reintroduction of this kind into Europe was by M. Blanchard into Marseilles, thence it passed to Paris and England. From this (a purple kind) the sport called the Changeable White was soon obtained. Sir A. Hume introduced several new colours between 1798 and 1808. Many others soon followed, so that in 1827 forty varieties were in cultivation. In 1865, Mr. Salter tells us, they had risen to seven hundred. In 1830 seed was obtained for the first time in France. Previously, besides forms introduced, the *Chrysanthemum* being particularly liable to sport, cuttings only had been propagated; but seedlings caused a vast influx of new forms of both species.

In 1862 Mr. Fortune introduced the new Japanese races, some with long petals and curious mouths to the corollas, suggesting the title of "dragons." It appears, however, on the authority of Mr. Crawford, Consul of Oporto, that the Japanese forms had been long cultivated there before their introduction into England.

The origin of the different forms of these flowers lies mainly in the changes undergone by the corollas of the disc or eye florets. In the wild form the ray florets have strap-shaped, the disc florets regularly five-toothed, tubes to their corollas. The principal changes may be thus enumerated:—I. To strap-shaped, becoming flattened from base to apex: (1) rolled inwards; (2), rolled outwards; (3) loose and spreading; (4), ditto, but much attenuated, pointed or bifurcating. II. The tube retained: (1), short, with five slightly enlarged teeth (*Anemone*); (2), teeth much enlarged and multiplied (*Dragon*); (3), tube elongated, with no teeth (quilled); (4), quilled, but open at the end and spoon-shaped, as in the Emperor of China.

STRAWBERRIES.

IN a recent number of the Journal a correspondent, writing about fruits, asks which is the best Strawberry. That is a difficult question to answer, and one about which there is sure to be a great diversity of opinion, and as difficult to decide as to say which is the best Rose or the best of any other flower. Before you answer the question you want to ask another—For what purpose? One variety is suitable for one thing, and another for something else, and the soil and situation make a considerable difference. Sometimes a Strawberry which thrives well in a certain garden and gives every satisfaction will not succeed at all in another only a stone's throw away. But the soil must not be blamed too much, for very often it is the cultivator who is in fault. He lets the weeds smother the poor Strawberries, and is not sufficiently particular in keeping the plants entirely distinct, so that in a wet season like the past there is such a development of foliage that the fruit cannot mature. Although it is difficult to say which is the best, I have no objection saying that if I only grew one it would be Keens' Seedling. Now I can quite understand some people would not concur in this, and say as a reason it is not large enough. Nothing delights some people more than to grow Strawberries so large that you must make two bites of them; but I do not see any advantage in having Strawberries so very large, and Keens' Seedling may be obtained of a respectable size by making a selection of plants. Some of them produce fruit larger than others, and if size is the object save runners from them. At the same time it must be admitted that the fruit cannot be grown to the size of Sir J. Paxton and others. And then the question is, Why not prefer a larger variety? The reply I should give is that Sir J. Paxton is a midseason variety, and if I only had one it would be rather tantalising to see plenty of Strawberries in the market for weeks before I had any. Then, again, Sir J. Paxton, although a good cropper in a general way, is liable to have the produce diminished in a cold wet season like the last, and also in a very hot and dry one, and the same remark applies to others.

Strawberries, like French Prime Ministers, have their day. They come out, they obtain popularity, they rise to the highest pinnacle, and remain there for some years, then their fortune is on the wane, another comes to the front, and they are finally supplanted and never again resume the position they held before. At one time it was British Queen, at another Sir Harry, at another Victoria, and now it may be said to be Sir J. Paxton. How long it will continue in its present position it is difficult to say. There are other candidates in the field, but I must wait until next year before I can give an opinion as to their merits.—AMATEUR, Cirencester.

RENEWING BORDERS OF HERBACEOUS PLANTS.

A GOOD border of hardy herbaceous plants, intermixed with some of the best half-hardy and tender annuals, is greatly appreciated in gardens now; and although in many gardens such borders receive a due share of attention, there are still numbers of places where they are much neglected. The strong-growing plants are allowed to take possession of the border, and any plants of weaker habit are ousted from their position for the want of a little attention. To have a satisfactory border it is necessary to trench the border and give it a dressing of manure or decayed leaves about once every two years; and as the season has arrived when the annuals are past and most of the perennials out of flower, the present is a favourable time for carrying out the work. Before commencing operations the material for dressing the border with should be placed near at hand; then lift all the plants for about 3 or 4 yards at one end of the border, and lay them in near to where it is intended to finish off the work. This will give ample room to start the trenching. As the work proceeds lift the plants

and transfer them to the newly prepared ground, taking care to plant them firmly in their new positions. The coarse-growing species may be reduced, and the weak growers will be benefited by having a handful of fresh loam placed about their roots. Be careful not to destroy clumps of bulbs, and when replanted their position should be indicated by a strong stick.

Some judgment will be required in disposing of the plants. Amongst those suitable for the back of the border will be *Pyrethrum uliginosum*, *Chrysanthemum maximum* (both fine for autumn), *Helenium autumnale*, some of the perennial Asters, *Campanula lactiflora*, *C. macrantha*, *Rudbeckia californica*, *Saponaria officinalis*, and *Lythrum salicaria*. Any spare spaces can be filled with Dahlias, Sweet Peas, Sunflowers, or tall-growing annuals. In front of the above may be planted *Achillea Ptarmica plena*, *Delphinium formosum*, *Fuchsia gracilis*, *F. Riccartoni*, *Lychnis chalcedonica*, *L. coronaria*, Pentstemons, Antirrhinums, *Harpalum rigidum*, *Oenothera fruticosa*, *Aster Amellus*, *Rudbeckia speciosa*, *R. purpurea*, Pæonies, and summer-flowering *Chrysanthemums*. Next come Aquilegias, *Anemone japonica*, *Potentillas*, *Orobis vernus*, *Spiræa palmata*, *S. filipendula*, *S. japonica*, *Bahia lanata*, *Campanula glomerata*, *C. persicifolia*, &c., *Geranium pratense*, *G. sanguineum*, *Hieracium aurantiacum*, *Polemonium coeruleum*, *Mimulus luteus*, *Scabiosa caucasica*, *Statice Limonium*, *Saxifraga cordifolia*, *Catananche coerulea*, *Veronica incana*, and *Geum coccineum*. For the front plant *Polyanthus*, Primroses, *Aubrietias*, common white Pinks, *Alyssum saxatile*, *Silene alpestris*, border Auriculas, *Phlox setacea*, *Prunella grandiflora*, *Campanula pulla*, *C. carpatia*, *C. carpatia alba*, *C. rotundifolia*, *Ajuga reptans*, white Arabis, red and white Daisies, *Gentiana acaulis*, and the following will be found useful annuals for filling up vacant spaces:—Sweet Scabious, Cornflower, *Salpiglossis*, *Bartonia aurea*, *Linaria bipartita splendens*, *Coreopsis tinctoria*, *Nemophila insignis*, *Limnanthes Douglassi*, *Hymenoxys californica*, *Schizanthus pinnatus*, *S. retusus*, *Calandrinia discolor*, *Godetia Lady Albemarle*, *Lupinus subcarnosus*, and *L. nanus*.—E. B.

ARAUCARIAS.

AS one of the few existing genera of plants linking the vegetation of the present time with that of the distant geologic ages, the Araucarias are invested with much interest alike to the scientist and the horticulturist, an interest which is shared in varying degree by the whole beautiful family of cone-bearing plants, as well as by their curious relatives the Cycads. Geologists have by their patient investigations revealed that at one period of the earth's existence, termed the reign of the Gymnosperms, these types constituted a large portion of the luxuriant vegetation, which resulted in the formation of those enormous coal fields that have proved so valuable to the English nation. Amongst the *Lepidodendrons*, the *Calamites*, the *Lycopodites*, and the *Pinites* of those days were others which are termed *Araucarites*, from their resemblance to the Araucarias now known, especially to *A. excelsa*, and some well-preserved specimens have been obtained in various parts of the kingdom, particularly in the neighbourhood of Edinburgh. From observations made on these it appears that not only did these plants grow and thrive here then, but they attained to heights rivalling, or perhaps exceeding, the species now found in other and warmer climates than our own. Though we could scarcely desire a return to the climatic conditions then prevailing on the globe, it is regrettable that only one of the Araucarias now in cultivation is sufficiently hardy to endure the low temperatures we occasionally experience in Britain. Fortunately there is another use to which they can be applied with satisfactory results, and that is for conservatories, greenhouses, or winter gardens, in fact any position where they can be protected from frost. In a small state for decorative purposes they are valuable, but when grown in a structure sufficiently large to permit their free development they cannot be excelled in majestic beauty.

With the *Dammaras*, the Araucarias may be considered as the representatives in the southern hemisphere of the northern Conifers; for while we there lose the Pines, Firs, Cypresses, and Junipers which are so familiar in Europe, Asia, and North America, we have instead the two genera first named, with *Arthrotaxis*, *Fitzroya*, some *Libocedrus*, *Podocarpus*, and other distinct forms, some of which are partially hardy in England. The Araucarias are not numerous, about eight species being known exclusive of varieties, and these are natives of Australia, New Caledonia, or South America, forming large forests often at a considerable elevation. As timber-yielding trees some of them are highly valuable, while the seeds in several cases form important articles of food to the natives. These matters can, however, be more fully referred to when describing the species, and a few notes may be first given upon the

CULTURE.—All the species of *Araucaria* agree in requiring a soil of substantial loam, but not too retentive, thorough drainage to prevent stagnation of water around the roots; and without these be provided suckers cannot be expected, whether the plants be in pots, in conservatory beds, or out of doors. The hardy *A. imbricata*, the Monkey Puzzle, now so common in British gardens, exemplifies this, for on shallow or light sandy soils it makes but poor progress, losing its lower branches, and is in fact far inferior to specimens grown under more favourable circumstances. This distinct Conifer also appears to thrive far more vigorously in those districts of England where the rainfall is above the average, and we find in the west of England some of the most symmetrical and handsome specimens in cultivation. I recently noticed this very markedly in the neighbourhood of Bristol, where this *Araucaria* is represented by many handsome examples; and still farther west, in Devon especially, it grows almost as vigorously as it does on its native mountains in South America. All the other species are too tender to be planted out of doors in this country, though specimens of moderate size in pots may be placed out in the summer months, and for subtropical gardens they are very suitable in this way. In the south of Ireland *A. excelsa* has been tried out of doors, but even there the results have been most unsatisfactory; a few degrees of frost injure the points of the branches, and quite disfigure the trees, while frost of greater intensity kills them completely. Some years ago it was recorded in these pages that "*Araucaria Cunninghamii sinensis*" had withstood five winters in the gardens of Elmham Hall, Thetford, Norfolk, quite unprotected; but I should think *Cunninghamia sinensis* must have been intended by the writer, as I have not heard of this species being planted out, and the variety is unknown to me. The *Cunninghamia* resembles some of the large-leaved *Araucarias*, and is, moreover, rather tender. They nearly all succeed very well in a greenhouse, or indeed any structure where the temperature is not permitted to fall below 40°; but *A. Rulei* thrives better in a warmer house, the cool end of a stove suiting it admirably.

PROPAGATION.—It is seldom, perhaps, that gardeners are required to increase their stock of these plants by propagation, especially as plants can be so readily obtained from nurserymen, who grow them in large quantities, but a few notes may be given as to the methods adopted. Imported seeds have been the chief source from which the numberless specimens of *A. imbricata* have been obtained, a few having been obtained from home-grown seeds, but these are comparatively few, and the others are far preferable. It has been observed in the case of several of the choicer Conifers that plants raised from seed produced in England have been greatly inferior to the type, being more weakly in constitution, and seldom forming handsome specimens. This point should be kept in mind, not only in the case of *Araucarias*, but with other Conifers also, as the seeds, either from imperfect fertilisation or immaturity, do not seem to be fitted to perpetuate their race. It has, indeed, been suggested that in collecting cones regard should be carefully paid to the locality where the trees are growing, those in the coolest districts or highest elevations being preferably selected, as the plants raised from such seeds are more likely to be vigorous and successful in our climate. It is usually recommended to sow *A. imbricata* seeds in cold frames or houses, but I have found them succeed better in a temperature of about 50° or 55°, as they germinate more freely and quickly, and can afterwards be removed to the cool frame until ready for planting out. Well-drained pots or pans of loam should be employed, the seeds being pressed in narrow end downwards, in the case of *A. imbricata* and the species of that section, to about half their length; the others can be inserted with their upper ends level with the soil or partly covered. *Araucaria excelsa* can be increased by cuttings, and doubtless some of the others could be propagated in the same way, but they are usually grafted on seedling stocks of the stronger or common species. Cuttings and scions are obtained in this way: The tops of the plants are cut off close to a whorl of branches, and the young shoots springing from these are removed when a few inches long, and either inserted in sandy loam and placed in moderate heat, or they are employed as scions for grafting on stocks. Occasionally, too, shoots are produced on the upper surface of the branches, and these may be taken off and treated similarly, but not the points of the main horizontal branches.

The botanical structure of the Araucarias need not be discussed here, but a peculiarity of the germinating seed may be noticed, as with other characters it has been adopted to divide the species into two groups. This is the fact, that in some species the cotyledons remain underground, being never released from the seed, which sends a young root downwards and then a small shoot upwards, while in others the cotyledons are developed. These

two sections have been termed *Colymbea* and *Eutacta*, the first including, according to Parlatore in Decandolle's "Prodromus," *A. imbricata*, *A. brasiliensis*, *A. Rulei*, and *A. Bidwilli*; the second containing *A. Cunninghamii*, *A. excelsa*, and *A. Cookii*, but for convenience they are taken in alphabetical order, describing the characters and uses of the species in the following notes:—

ARAUCARIA BIDWILLI.—This is a very distinct and handsome species, which is found in a comparatively small district in

Queensland, about thirty miles long by twelve broad, but it is very abundant in that space. It there attains a great height, and is valued both for its wood and seeds, the latter forming such an important article of food to the natives that the Colonial Government have issued orders forbidding the destruction of the trees by those who have a licence to fell timber. The tree is known as the Bunya Bunya, and are said to be the only property possessed by the natives, certain trees being claimed by tribes



fig. 75.—CONE OF *ARAUCARIA COOKII*, WITH SPRAYS OF *SAXEGOTHEA CONSPICUA* AND *FITZROYA PATAGONICA*.

or families, and their rights are recognised. The seeds when uncooked have been considered to be intermediate in flavour between a raw Potato and a Chestnut, but when roasted, the usual method of treating them, they more nearly resemble the latter. Though the seeds are produced every year the principal crop occurs every third year, when the natives assemble for a great feast; and Mr. Walter Hill states that, contrary to their usual custom, "they sometimes store up the Bunya nuts, hiding

them in water holes for a month or two. Here they germinate and become offensive to a white man's taste, but are considered by the blacks to have acquired an improved flavour."

In 1842 Mr. Bidwill, after whom the species is named, introduced some plants, one being purchased by the Duke of Northumberland for a hundred guineas, and the others were transferred to Kew, and in the temperate house there are now two grand specimens about 25 or 30 feet high, and in admirable con-

dition, well displaying the character of the species. The branches are strong, of considerable length, slightly bending towards the ground, the branchlets being closely set, drooping, and 2 to 3 feet long. The leaves are lance-shaped, flat, about half an inch broad at widest part, and of a rich shining green colour, somewhat suggestive of *A. imbricata*. One of these trees produced cones, the first borne in this country, in 1873. For such winter gardens this *Araucaria* is very useful, as it has a noble and striking habit.

A. BRASILIENSIS.—In the same house as the above at Kew are also fine examples of several other species, amongst them being one of *A. brasiliensis* 25 feet high. It has long slender drooping branches, four or five in a whorl, the branchlets being from 1 to 3 feet long and pendulous. The leaves are tapering, closely set, 2 to 2½ inches long, and bright green, or with a slight glaucous hue. A variety included in the same collection named *Saviana* is distinct, the leaves being larger and more closely set; another variety being also known of more slender habit and named *gracilis*. This species is found on the Brazilian mountains in dense woods at elevations of 1200 to 3000 feet. Small plants of this species are not very plentiful, but I should think it would be useful in pots for the stages or shelves of a greenhouse.

A. COOKII.—It is recorded in Captain Cook's account of his second voyage, that an island observed near New Caledonia was so thickly covered with enormously tall trees of this *Araucaria*, the width of which is small in proportion to its height, said to be sometimes 150 feet, that they were mistaken by some for basaltic columns, and this peculiarity has doubtlessly given rise to the synonym by which the plant is known—viz., *A. columnaris*. When it was ascertained by the above-named navigator that the supposed columns of basalt were really living trees their situation was termed the Isle of Pines, and some elaborate considerations are indulged in by the recorder as to the fitness of the stems for masts. The species is also found in New Caledonia, and plants were introduced to this country by Mr. Charles Moore of the Sydney Botanic Garden in 1851, being consigned to the London Horticultural Society, and a plant was first exhibited in the following year. I am not aware that there are any large specimens of this in cultivation. The finest I have seen is at Kew, about 12 feet high, which has slightly drooping branches clothed with short branchlets bearing closely set needle-like leaves about half an inch long. A very well-grown specimen has lately been sent to Kew from Floors Castle, and this well shows the characters and beauty of the species.

In the woodcut (fig. 75) a handsome cone of the above-mentioned *Araucaria* is shown, and may be taken as an example of the larger cone-bearing *Araucarias*. The two sprays accompanying it are *Saxegothaea conspicua* on the left, and *Fitzroya patagonica* on the right, both pretty little Conifers from the southern hemisphere, which succeed in the warmer sheltered parts of England.

Notes on the other species of *Araucaria* must be reserved.—
L. CASTLE.

JUDGING AT THE EDINBURGH SHOW.

I HAVE watched with much interest the correspondence that has been going on in your columns regarding the fruit-judging at the International Show held in Edinburgh in September. Complaints, I am sorry to say, have not been confined to the judging of fruit alone; but it is always thus at important exhibitions. Grumbling and fault-finding will continue to exist as long as human nature itself does. According to a west of Scotland newspaper the vegetables likewise came in for a good share of attention, and it was asserted that the first-prize Leeks were "soft and flabby," while the second lot were firm and equally well blanched." The writer of that signs himself "A GARDENER." I would ask in all fairness if any unprejudiced person thinks that the Judges, be they who they may, would have awarded a first prize to Leeks that were "soft and flabby," and more especially when there was such a close second. No, I am afraid the matter has a different interpretation. I know, and it was observed by many as well as by myself, that the Leeks in question bore evident traces of having been roughly handled after being judged, thus spoiling their appearance.

My object in writing to you is to impress upon your wide circle of readers the non-desirability of paying much attention to complaints about judges, because nine-tenths of them will be found to be without foundation. The task of judges is often very difficult and too often thankless. In my experience I have always found them actuated by a desire to deal out even-handed justice to the very best of their ability.—A STIRLINGSHIRE OBSERVER.

[No doubt this is so, and the Judges at the Show in question were all men of ability. In reference to the awards that have been

questioned in the fruit classes the Judges had a more than usually difficult task to perform. It is for the committee of a show to clearly express what is required of exhibitors, and the duty of judges to act in accordance with the published conditions. In a fruit show where the question of whether fruit should be "ripe and fit for table" is left open, dissatisfaction with the awards is sure to follow; and whether complaints are merited or not, the judges are not responsible, but the committee. The question of judging fruit at Edinburgh is not a personal one at all.]

CHRYSANTHEMUM SHOWS.

THE season appears to be favourable to the Chrysanthemums, and the shows held to the present time have been extremely good, cut blooms being particularly well shown and the plants generally in satisfactory condition, though many would have been better a little later. As usual, the majority of the exhibitions are crowded into about a fortnight, no less than ten having been held in the first three days of the present week. In consequence we are unable to give anything more than condensed reports, indicating the chief features of the displays and the leading exhibitors in the principal classes.

BRIXTON.—NOVEMBER 9TH AND 10TH.

The exhibiting season was this year commenced by this energetic Society, and their twenty-third Show was alike creditable to the gardeners of the district and to the Secretary, Mr. Hall, who so admirably superintends the arrangement of the exhibits. The Show was held in the lecture hall adjoining the Congregational Church, Streatham Hill, which was well filled, indeed it proved scarcely large enough, but by a judicious disposition of the plants and stands space was economised as much as possible, and yet a pleasing effect was produced. Chrysanthemums formed the principal feature of the Show, and must be therefore first briefly noted, commencing with the

Cut Blooms.—These were remarkably good in several classes, incurved Japanese and Anemones being well represented. For twenty-four incurved Mr. J. Holmes, gardener to G. M. Storey, Esq., Nightingale Lane, secured chief honours with a stand of even, fresh, substantial, and beautiful blooms of the following varieties:—Conqueror of India, Baron Beust, Princess Teck, John Salter, Jardin des Plantes, Princess Beatrice, White Globe, Nil Desperandum, Beverley, Prince Alfred, Mr. Bunn, Lady Hardinge, Mr. Brunlees, Alfred Salter, Mrs. Haliburton, Princess of Wales, Mrs. Heale, White Venus, Queen of England, Cherub, and Lady Slade. Of the five other competitors Mr. A. Holmes, gardener to A. B. Hill, Esq., Clapham Park, and Mr. Salter, gardener to J. Southgate, Esq., Leigham Court Road, were second and third respectively, both showing good blooms. Seven collections of twelve incurved were staged, Messrs. A. Holmes, J. Holmes, and T. Sadler, gardener to Ch. Lambert, Esq., Leigham Court Road, were the prizetakers in that order. Mr. J. Holmes was again the most successful exhibitor of twenty-four Japanese blooms, securing the leading prize with large richly coloured examples of Cry Kang, Soleil de Levant, Gloire de Toulouse, Red Gauntlet, Hiver Fleur, Red Dragon, Dr. Macary (fine), Bronze Dragon, Abdel Kadir, Curiosity, Jane Salter, Elaine, Plantagenet, L'Incomparable, Baronne de Prailly, Peter the Great, Magnum Bonum, Fair Maid of Guernsey, Fulgore, G. Delaux, Sarnia, Criterion, Rosa Bonheur, and Nuit d'Hiver. Mr. J. Young, gardener to T. Hicks, Esq., Streatham Hill, and Mr. W. Clark, gardener to J. Rains, Esq., Nightingale Lane, were second and third with praiseworthy blooms. The best twelve Japanese were from Mr. A. Holmes, who took first honours, followed by Messrs. W. Green, gardener to H. Russell, Esq., Clapham Common; and E. Cherry, gardener to Mrs. Gabriel, Streatham. Two very pretty collections of Anemone-flowered varieties were staged by Mr. J. Howes, gardener to Mrs. F. Besant, Tulse Hill, and Mr. J. Swain, gardener to Mrs. Wilson, Lower Tulse Hill. The first named had the following Pompon varieties: Toinette, Sidonia, Marguerite de Willemar, Aglaia, Firefly, Madame Chalmers, Perle, Miss Nightingale, Antonius, Calliope, Mr. Astie, and Marguerite de Coix; while the large-flowered varieties shown by Mr. Swain were Acquisition, Lady Marguerite, Gluck, George Sands, Louis Bonamy, Prince of Anemones, Fleur de Marie, and Princess Louise. Other exhibitors in these classes were Messrs. Young and Livermore. In the class for twelve incurved blooms, confined to those who have not previously taken a prize, Mr. J. T. Salter, gardener to Mark Sheppard, Esq., Roupell Park, and Mr. C. Prestoe, gardener to B. F. Smith, Esq., Tulse Hill, were accorded the first and second prizes for blooms of fair quality.

Specimen Plants.—Some neat examples of these were shown, indicating a steady improvement. The best class was that for six plants, large-flowered varieties, in which Mr. Cherry was adjudged chief honours for well-grown specimens, not too rigidly tied, and bearing fine blooms. The varieties were Prince of Wales, Barbara, Mrs. Haliburton, Venus, Mrs. Dixon, and Elaine. Mr. J. Howes followed with good plants, but rather stiff, and the blooms not fully developed. Mr. Cherry also had the best six dwarf Pompons, being well-flowered plants of La Vogue, Cedo Nulli, Sunset, Mr. Astie, Fanny, and Jean Hatchett; Mr. J. Howes following in that class also. Trios were shown by Messrs. Cherry and Salter, who were placed in that order,

Messrs. Livermore and Cherry contributing pyramid Pompons, and Messrs. Livermore and W. Clark standards, none being superior.

Miscellaneous Plants.—Very conspicuous amongst these were the Orchids in competition, as well as the fine group contributed by Mr. Salter, which the Judges highly commended. For six specimens Mr. Salter won chief honours with good examples of *Cypripedium Harrisianum*, *Odontoglossum grande* with three spikes, *Cœlogyne ocellata*, *Dendrobium heterocarpum*, *Vanda cœrulea*, and *Oncidium crispum*. Mr. Young followed, having a fine *Dendrobium nobile*, *Calanthes*, and *Zygopetalum Mackayi*. Trios were shown by Messrs. Salter, A. Holmes, and Poole, while in the single specimen class Mr. Salter took the lead with an exceedingly fine plant of *Masdevallia towarensis* bearing about five dozen flowers. Mr. Clark had the best four fine-foilage plants—viz., *Dracæna Youngi*, *Croton Weismanni*, *Corypha australis*, and *Croton majesticus*—all healthy specimens of moderate size; Mr. H. Wright, gardener to Mrs. Hyatt, Palace Road, and Mr. Cherry taking the other prizes in that order. Several good collections of Ferns were also contributed, Mr. Young having four handsome plants, and winning the principal prize. His *Adiantum gracillimum*, *A. Farleyense*, *Gymnogramma peruviana argyrophylla*, and a golden-coloured seedling of the same genus were in first-rate condition. Messrs. Poole and H. Wright competed in the same class with creditable examples.

Fruit was not largely shown, but three dishes of dessert Pears from Mr. W. Hall, gardener to W. Stevens, Esq., Tulse Hill, which were placed first in the class, were even, of fair size, and well ripened. Dessert Apples were also well shown by Mr. W. Collins, gardener to T. Schizman, Esq., Clapham Park, and kitchen Apples by Mr. F. Yates, gardener to S. Lutwyche, Esq. Mr. Holmes, gardener to T. Wallace, Esq., Clapham Common, had the best black Grapes—two well-coloured bunches of *Alicante*, Mr. W. Howe securing the same position in the white Grape class with *Muscat of Alexandria* small but ripe. Vegetables were satisfactorily represented, the prizewinners being Messrs. Young, Swain, Cherry, Sandy, Yates, and Collins.

Amongst the contributions not in competition were two bunches of *Gros Guillaume* weighing 9 lbs. from Messrs. Lane Brothers, Brixton Road, and fairly coloured. Messrs. J. Peed & Son, Norwood Road, also had two bunches of Grapes—*Alicante* weighing 3½ lbs., and *Trebiano* weighing 2½ lbs. Mr. Salter sent fruits of his *Cucumber Selborne Rival*, which were highly commended, as were also two dozen handsome blooms of the white sport from James Salter—*Lady Selborne*. Mr. Todman exhibited a plant of a new *Azalea* named *Master John Connell*, a hybrid between *A. obtusa* and *A. Todmani*, with small deep red flowers, the petals rounded, and the general appearance very neat. A certificate was awarded for it.

STOKE NEWINGTON.—NOVEMBER 13TH AND 14TH.

As one of the oldest and at the same time one of the most important shows in the neighbourhood of London, the Stoke Newington *Cbrysanthemum* Exhibition possesses more than ordinary interest, and it has gained a well-deserved fame for the high quality both of blooms and plants there shown. The present season's display was no exception to the rule, well maintaining the credit of the Society in all respects, entries being quite as numerous as usual, the competition keen, and the general freshness of the exhibits most satisfactory. The Lecture Hall in Defoe Road, Church Street, was chosen for the occasion, as it has served the same purpose several years previously, and the arrangements were well conducted under the superintendence of the Secretary, Mr. W. Goldsmith, to whose efforts the steady progress of the Society is largely due.

Plants.—The various classes for these were well filled, several very handsome collections being shown, though there was a deficiency in others that has not been so noticeable in some previous years' shows. The finest specimens were those in the class for ten plants in pots not exceeding 12 inches in diameter and arranged for effect, the veteran exhibitor Mr. W. Monk, gardener to W. Fowler, Esq., Leytonstone, securing the chief prize (a £7 silver cup) with a collection of great merit, the plants healthy, the blooms abundant, large, and well formed. They comprised good standard specimens of *Fanny* and *George Glenny*, pyramidal examples of *Mrs. G. Rundle*, *Golden George Glenny*, and *Venus*, with *Antonelli*, *Julia Lagravère*, *Sœur Melanie*, and *Lord Stanley* as dwarfs. Mr. Payne, gardener to C. C. Payne, Esq., Cedars House, Stamford Hill, followed closely, his best examples being beautiful standards of *Marie Stuart* and *Bob*, with the dwarfs *Sœur Melanie* and *Lilac Cedo Nulli*; these were exceedingly well flowered; Mr. Langford, gardener to J. Barnet, Esq., Coleraine House, Stamford Hill, taking the third place with but slightly weaker specimens. Three good lots of four standards were staged, Mr. Monk securing the chief award with neatly trained specimens of *The Cossack*, very well flowered; *Venus*, *Golden George Glenny*, and *Mrs. G. Rundle*. Mr. Wells, gardener to W. A. Smee, Esq., The Limes, Woodbury Down, Finsbury Park, and Mr. Payne took the second and third positions, the last-named having two pretty examples of *Prince Victor* and *Antonius*. Mr. Wells contributed the best six Pompons—freely trained and abundantly flowered plants of *Prince Victor*, *Golden*, *Lilac*, and *White Cedo Nulli*, *Sœur Melanie*, and *Fanny*; Mr. Payne being second with smaller plants. The above-named exhibitors, with the addition of Mr. Gilbey, gardener to B. Booth, Esq., The Cazenoves, Upper Clapton, were also prizetakers in other classes.

Blooms.—There was a grand display of blooms; a long table in the

centre of the Hall was occupied with two lines of boxes, the space between these in the centre of the table being filled with Palms, Ferns, and similar plants, which greatly relieved the formality of the boxes. The leading class for competitors from the boroughs of Hackney and Finsbury was for twenty-four incurved blooms, in which Mr. Gilbey not only won chief honours but was also awarded a silver cup for his stand as the best twenty-four in the Show, though the Judges spent considerable time in determining its position, as Mr. Mark's collection in the open class was extremely close in merit. Mr. Gilbey exhibited fine specimens of *Queen of England*, *Mrs. Heale*, *Jardin des Plantes*, *Emily Dale*, *Princess Beatrice*, *Golden Eagle*, *Hero of Stoke Newington*, *Mrs. Haliburton*, *Guernsey Nugget*, *Lady Hardinge*, *Antonelli*, *Princess Teck*, *Rev. J. Dix*, *Isabella Bott*, *John Salter*, *White Globe*, *Enamel*, *Barbara*, *Prince Alfred*, *Golden Empress of India*, *Mr. Bunn*, and *Refulgence*. Mr. Martin, gardener to H. Matthews, Esq., The Cedars, Finsbury Park, and Mr. Payne followed in that order. In the borough classes for twelve and six incurved, the above, with Mr. Hawke, gardener to Miss Allan, 1, Bethune Road, Stoke Newington, Mr. Chalkley, and Mr. Hammond were the prizetakers.

The prizes in the open class for twenty-four incurved were well contested, the first and second collections containing extremely fine blooms, and were nearly equal in merit. Mr. W. Monk gained chief honours with a grand lot, having superb examples of all the best varieties. Mr. J. Udale, The Gardens, Sbirecliffe Hall, Sheffield, was a very close second, but the first had a little more weight in his favour, though considering the distance the blooms had been brought they were very fresh, bright, and creditable. Unusually good specimens of *Golden Queen of England*, *Golden Empress of India*, *Beverley*, *Mr. Bunn*, *Mrs. Heale*, *Lady Talfourd*, *Princess of Wales*, and *Venus* were included. Mr. Young, gardener to G. Thompson, Esq., Stamford Hill, was second. Messrs. Monk, Wells, Langford, and Young were also the principal competitors in other classes for incurved blooms. The remarkably successful exhibitor, Mr. Monk, again led with twelve Japanese blooms, richly coloured substantial specimens of *Peter the Great*, *Cry Kang*, *Fair Maid of Guernsey*, *Gloire de Toulouse*, *James Salter*, *Rosa Bonheur*, and others. Messrs. Langford and Gilbey secured second and third places. The best six Japanese were similarly from Mr. Monk; Mr. W. Goldsmith, Grove Road, Stamford Hill, and Mr. Langford following. Mr. Goldsmith won first prize for twelve incurved blooms in the amateurs' class, and Mr. R. W. Wright, 42, Darley Road, Hackney, had a similar prize for twelve fine *Anemone* Pompons.

Miscellaneous plants were well shown by Messrs. Archer, gardener to J. Griffiths, Esq., Highbury; Payne, Jones, Gilbey, and Hawke; while the contributions not in competition were also numerous, prominent amongst them being a handsome collection of fruits, bouquets, and salads from Mr. J. Smith, 128, High Street, Stoke Newington; twenty-four fine incurved blooms from Mr. Cockrane; and some particularly good Mushrooms from Mr. Hawke.

LAMBETH.—NOVEMBER 13TH, 14TH, AND 15TH.

The eighth annual Exhibition of this local amateurs' Society was opened on Monday last in the Lecture Hall, Borough Road, and unquestionably indicated considerable advance upon previous shows, good as some of those have been. The entries also appeared to be more numerous, and considering the district in which the growers reside—within a radius of a mile and a quarter of the "Elephant and Castle"—the general quality both of blooms and plants was most praiseworthy. Some honorary members who reside outside this radius are, however, admitted, but special classes are provided for them.

In the specimen plant classes the two most noticeable were for a group of twelve and six standards. In the first Mr. Ball took the lead with well-grown *Prince of Wales*, *Guernsey Nugget*, and *Fair Maid of Guernsey* amongst others; Messrs. Clarke and Tozer following. Mr. Tracy had the best standards, neat examples of *Mrs. G. Rundle*; Mr. Williams securing the second place. In other classes for plants Messrs. Howett, Williams, and Tracy were the prizetakers.

Blooms were numerous and excellent. For twelve incurved Mr. Ball won chief honours with even symmetrical blooms, *Beverley*, *Prince of Wales*, and *White Globe* being especially good. Messrs. Tozer and Childs secured the remaining prizes; and with Messrs. Crisp, Williams, and Howett took the chief positions for the other classes. Mr. Crisp, the Honorary Secretary, was the only exhibitor in several of the honorary members' classes, and staged some very satisfactory blooms, but his twelve Japanese, which were deservedly awarded the first prize, were surprisingly rich in colour, comprising really handsome blooms of *The Cossack*, *Le Negre*, *Gloire de Toulouse*, *Fulgore*, and *Cœur Fidèle*. Japanese were also beautifully represented in the collection from Messrs. Child, Tracy, Williams, Addison, and Davison, a bloom of *Père Delaux* in Mr. Child's stand being remarkably fine. *Anemone*, reflexed, and other varieties were provided for and well shown.

Messrs. J. Laing & Co., Forest Hill, contributed a handsome group of Palms and other fine-foilage plants, which were arranged at the end of the room, forming an attractive group. In addition to the ordinary money prizes it should be remarked that several special prizes were given by members, and comprised a silver teapot, a handsome album, and a writing case, which are greatly valued by the recipients.

PUTNEY.—NOVEMBER 14TH.

The Assembly Rooms, Putney, were well filled with exhibits of Chrysanthemums, both plants and blooms, miscellaneous plants, fruit and vegetables, on Tuesday last, on the occasion of the fifth annual Exhibition of the above Society. Though the room devoted to the Show is of considerable size it was by no means sufficiently spacious for the numerous exhibits, and in consequence there was a too noticeable crowding in several cases. Near the walls the plants and groups were arranged, a central table bearing the blooms, fruit, small plants, bouquets, &c., all the space at disposal being utilised in the best possible manner, producing as a result as pretty a show as could be desired.

Plants.—In the classes devoted to these by far the most important was that for a group arranged with a view to effect, and the contributions in this formed a grand feature in the Exhibition. Messrs. Mahood & Son, Putney, were deservedly adjudged chief honours for a bank of admirable plants in most vigorous health, and bearing blooms of surprising size and substance, the Japanese and incurved being superb. Excellent taste had also been displayed in the arrangement of the colours, a pleasing harmony distinguishing the whole group. Mr. Stevens, St. John's Nursery, Putney, was a close second, many of his blooms being equally as fine as those in the first; but plants in the front row were too high, and this gave a somewhat unfinished appearance to what would have been otherwise as meritorious as the other. More incurved varieties were employed than in the leading group, but a number of Yellow Dragon contributed greatly to the brightness of Mr. Stevens' collection. Mr. Tyte, gardener to Mrs. Reed, Heath Croft, Putney Heath, followed with smaller but healthy plants well arranged; Mr. Hopkins, gardener to A. Burr, Esq., Riverdale, Putney, being fourth. In other classes for specimen Chrysanthemums the Pompons were particularly well represented, a fine collection of six dwarf-trained gaining Mr. Tyte the leading prize in that class. The best of his plants were *Mlle. Marthe* and its golden form, *Liliputian*, *Fanny*, and *Eleonore*, all compact, evenly trained, freely flowered specimens. Mr. Hoskins, gardener to S. Williams, Esq., The Laurels, Putney, was a good second; and Mr. Stevens secured the third place. Mr. Stacey, gardener to E. Nixey, Esq., Meaburn House, Upper Richmond Road, won chief honours for a single specimen Pompon with a dwarf-trained President 4 feet in diameter and profusely flowered. The same exhibitor also took the lead with two large-flowered varieties, trained plants, Mrs. Sharp and Elaine in good condition.

Blooms.—There was an excellent show of blooms, the incurved and Japanese being grandly represented in the principal collections. The class for twenty-four incurved was particularly fine, Mr. Harding, gardener to J. D. Galpin, Esq., Bristol House, Putney Heath, securing first honours with magnificent blooms, every one of great merit, large, of symmetrical form, clean, and fresh. Very notable were his examples of *Queen of England* (the premier incurved bloom in the Show), *Empress of India*, Mr. Gladstone, John Salter, Baron Beust, *Golden Empress of India*, *Empress Eugénie*, Mr. Bunn, *Refulgence*, and *Prince Teck*. Mr. E. Berry, gardener to the Countess of Leven and Melville, Roehampton House, was a close second with meritorious but slightly smaller blooms; Mr. W. Green, gardener to H. Russell, Esq., Clapham Common, following with an even collection. Mr. Berry took the lead with twelve incurved, staging fine examples of *Golden Empress of India*, John Salter, *Refulgence*, *Prince Alfred*, and *Prince of Wales* amongst others. Messrs. A. Coombs, gardener to F. A. Browne, Esq., Lawn Bank, Teddington, and J. Bentley, gardener to T. E. Baring, Esq., M.P., The Cedars, Roehampton, secured the second and third positions, both showing creditable specimens. The Japanese were similarly fine, Mr. Berry's premier stand of twelve including grand blooms of *Madame Moulise*, *Peter the Great*, *Red Gauntlet*, *Cry Kang*, M. C. Hubert, *Fair Maid of Guernsey*, *Criterion*, *Triomphe de Nord*, *Baronne de Rilly*, and *Fulgore*. Mr. E. Coombs' second-prize stand contained several handsome, large, and richly coloured blooms, a superb example of *Comtesse de Beauregarde* being selected as the premier Japanese bloom in the Show. Other smaller classes were well filled.

Several small groups of miscellaneous plants were contributed, Messrs. Hoskins and Bentley winning the chief prizes with healthy specimens of Palms, Ferns, Begonias, and Crotons. Ferns, too, were shown in good form, especially by Mr. Stevens and Mr. Woodhams, gardener to R. Davis, Esq., Earlsfield, Wandsworth Common. Primulas, plants of table decoration, Pelargoniums, and bouquets all contributed to the display; while in the classes for fruit the Black Alicante Grapes from Mr. R. Holmes, gardener to J. Wallis, Esq., Clapham Common, the dessert Apples from Mr. Coombs, and culinary Apples from Mr. Haines, were very satisfactory. Messrs. Mahood & Son exhibited a seedling Japanese Chrysanthemum named Mrs. J. Mahood, for which a certificate was awarded; it has narrow twisted drooping florets, which are creamy in colour, the bloom being full and distinct.

SOUTHAMPTON.—NOVEMBER 14TH.

Established twenty years, the Southampton Horticultural Society has had many successful shows, but never one in the autumn so good as the one we can only refer to too briefly. Chrysanthemums, both as regards plants and cut blooms, showed a great improvement on past efforts; indeed, contrasted with the results of half a dozen years ago the advance is little short of marvellous. Of fruit the display

was not so large as last year but better, Grapes, Pears, and Apples being excellent, not a few dishes splendid; while the exhibition of vegetables, both for extent and high average quality, was such as is seldom seen at an autumn show.

Mr. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, Bishops Waltham, was the premier exhibitor of cut blooms, winning the chief prizes in every class in which he competed—namely, in the open and gardeners' classes for twenty-four blooms, in the class for twelve incurved or reflexed, and in those for a similar number of Japanese and large Anemone-flowered varieties. Nor was this achievement the result of poor competition—on the contrary, the other successful exhibitors staged meritorious stands. The truth is Mr. Molyneux must rank amongst the foremost growers of the day. His blooms are remarkable for their high finish, symmetry, solidity, and, many of them, large size. The Japanese variety, *Madame C. Audiguier*, has never before been represented so splendidly—nearly 7 inches in diameter, 6 high, with flat petals interlaced like loose basketwork, colour satiny-rose. Growers, make a note of this, obtain the variety, grow it similarly, and be thankful. Several other Japanese blooms merit notice, but they must reluctantly be passed. Amongst his incurved flowers *Princess of Wales* has rarely, if ever, been excelled, and Mrs. Heale, Mr. Howe, *Jardin des Plantes*, *Golden Empress*, and *King of Crimsons* were about equally fine; the stand included a bright and good bloom of Mr. Bunn, and the new sulphur yellow, Miss Mary Morgan, was well represented. Mr. Allen, gardener to J. Bailey, Esq., Elmfield Hall, was an excellent second in the open class; Mr. Pope, gardener to G. Hatherley, Esq., Northbrook House, was third; and Mr. Wills, gardener to Mrs. Pearce, The Firs, Basnett, an exceedingly close fourth. Messrs. Allen and Wills followed Mr. Molyneux in the gardeners' twenty-four and in the open class for twelve Japanese blooms, Mr. Pope being an equal third, all staging most meritoriously. Mr. Osborne, gardener to H. J. Buchan, Esq., was second, with highly creditable examples in the incurved (open) class for twelve blooms, and Mr. Allen third. In the gardeners' class the prizes went to Messrs. Pope and Osborne, with good stands of nearly equal merit. Amateurs exhibited neat blooms, many being good, in the classes provided for them, but these it is impossible to particularise.

Although the plants were effective and some decidedly good in their way, yet several were inferior, and in one or two instances the Judges were liberal in granting prizes. Mr. Allen was clearly the premier exhibitor in these classes, his specimens being about 3½ feet high and the same across the tops, in form somewhat resembling blunt pyramids standing on their apex—not quite the best style to adopt, yet the Japanese examples were undeniably imposing, and his single specimen reflexed, Mrs. Forsyth, 5 feet in diameter, was the best in the Show; while the Japanese *Triomphe du Nord* was almost equally good. The second in this, a large and striking plant of *Sultan*, just lost the chief position by rather defective foliage. Mr. Allen was first in every class in which he competed, including the groups, which were good. Mr. Osborne was first for six plants, the remaining prizetakers in these classes being Messrs. King, Amys, and Wills. Several of the plants were tied much too late, and the stems bent too near the top. Where twisting must be done it should be done earlier and lower, and the result would be far more satisfactory. We should like to notice the amateurs' plants and to dwell on Dr. Buchan's charming group of Orchids, but neither time nor space permits this being done. Mr. Wills' group of miscellaneous plants was far the best in the building; the plants in the second-prize group of Mr. Amys being very good but too closely packed. In the nurserymen's classes Messrs. Ransom and Kingsbury were the prizetakers.

Grapes from Messrs. Hall, Sanders, Cox, and Matthews; Pears from Messrs. Mair and Gates; Apples from Messrs. Turton, Fowle, and Hall; and vegetables from Messrs. Pope, Sanders, Allen, Molyneux, and Tyler, were all superior and in the highest degree creditable to the respective cultivators; while other exhibitors, whose names we failed to obtain owing to the dense crowd, also staged excellent produce.

Captain Gibbs, Mr. Fudge, and the Managers of the Show generally merited the thanks of the Society and the public for the excellence of the arrangements, while the schedule was clear and the conditions admirably defined, thus greatly assisting instead of, as faulty schedules always do, perplexing the Judges.

SILKWORMS AND SILKWORM REARING.—19.

(Continued from page 412.)

EUROPEAN missionaries in these modern days have, like some of the monks of the olden time, rendered good service to art, literature, and science while pursuing their more sacred duties. Many a valuable product of distant climes has been discovered and thereafter sent over to the fatherland by a missionary who has not lost his home instincts whilst living or wandering amongst less civilised races. North China, and more especially the province called Manchouria, is the head quarters or natural locality of another feeder upon the Oak, Bombyx or Attacus Pernyi. The specific name was given in remembrance of the fact that by Archbishop Perny, a French cleric, the first examples were sent to Europe. Possibly this plan of designating animals and plants

out of honour or compliment has done some harm to science, at least "the line must be drawn somewhere," as several entomologists thought when it was proposed to call a new moth "Blanchella," after a young lady. For who could say that we might not have inflicted upon us next a *Johannesii* or a *Billella*? In the Universal Exhibition of 1855 the cocoons and silk were shown to the public, specimens of this species having been reared by M. Jordan at Lyons.

Figuier highly commends the silk yielded by *Attacus Pernyi*, in which he thinks are united most of the excellent qualities of linen and cotton, as well as of silk. The colour is somewhat against it, since this is greyish-yellow or light brown, nor does it take a dye very readily, in this particular being inferior to the silk of *A. Yama Mai*. Another disadvantage we have had to contend with: As yet any attempts at reeling the cocoons have



Fig. 76.—*Attacus Pernyi* Moth.

proved a failure in Europe, owing to the weakness of the thread at the apex. Corded, however, a strong and soft thread is obtained readily. The Chinese, it is said, do reel their cocoons; perhaps in its own region the insect forms a cocoon rather different from those spun with us. Indeed, the silk of *A. Pernyi* is an established article of commerce in China, recognised at once from its colour as the product of the silkworms, wild or tame, that have been reared in the mountainous districts. Goods that are manufactured from it are called "pingees," and probably about ten thousand bales or more come into the market each year.

The moth (fig. 76) is a trifle less in size in the average than that of *A. Yama Mai*, of a greyish-brown colour, tinged here and there with red, having the four spots or eyes that are usual in the group, and antennæ very conspicuous in the males. They are more active than their partners, the females being disinclined to fly, although their wings are the broader of the two, but they move from twig to twig when depositing their three hundred or four hundred eggs. As the insect passes the winter in the chrysalis state, the moths that appear during the warm weather of spring lay eggs which hatch in a fortnight or three weeks. The little worms begin by being restless, yet they show a partiality for each other's society, liking to sip the morning dew, but not such thirsty creatures as are the juvenile *Yama Mai*. After the first cast of skin they cease to be gregarious, and their black jackets are changed to greenish.

Each of the four moults alters their appearance; the last exhibits them of a yellowish-green, the surface of the body dotted over with long spines, which are curiously clubbed at their tips. The head is of a conspicuous brown hue, nearly black in some individuals. When they are roaming at liberty, just as they are getting large, these silkworms are fond of working their way to the tops of Oak twigs from which they have stripped the leaves, and resting there to sun themselves they hold out an attractive bait to caterpillar-hunting birds. Our observations upon them in confinement, made up to the present date, indicate that they suffer less from diseases than the *Yama Mai* silkworms. By means of a pedicel or footstalk of silken cord the cocoon (fig. 77) is attached to a twig, and swings there securely through the winter season. Hence there is not much difficulty in detecting these cocoons when the leaves are fallen or diminished in number, and the Chinese go out to hunt for them amongst the woods and mountains where the species occurs wild, obtaining a good many if the season has been favourable and the birds not too destructive. As the cocoon is large and spun rather loosely, the chrysalis within is apt to shake about and receive injury if it is exposed to the chances of a journey, so that purchasers of unopened cocoons may have their hopes frustrated should they wish to obtain moths for

breeding. Eggs, however, may be had from various dealers in May or June at about the same price as is charged for those of *B. cynthia*. Moths also sometimes appear during August, the species being naturally double-brooded; but there is difficulty in rearing an autumn brood of the worms in this country from the eggs deposited then, and it is generally considered advisable to check the progress of the summer chrysalids by keeping the cocoons cool, so that the moths may come out in the spring of the next year.

Mr. T. T. Meadows, from personal inquiry in North China, was able to ascertain that the rearers of *A. Pernyi* there usually obtained two crops of the mountain silk each year. The second gathering of cocoons is in September or October, and those to be preserved for continuing the brood are kept at a temperature rather above that they would be subjected to in the open air, as the frosts of their winter are occasionally severe enough to kill the chrysalis in exposed places. When the females are ready to deposit eggs they are placed upon sheets of the native paper spread over tables. It is often necessary to force the Oak for the food of the young worms, twigs being cut and placed in tubs within doors. The newly hatched worms are carefully fed with tender leaves until they are about an inch long, then they are transferred to suitable bushes in the hill slopes, where they seem to thrive better than in spots more sheltered. The summer of the region is seldom hot, and the few warm days are separated by cool intervals. No particular attention is bestowed upon the silkworms, only they are moved from bush to bush as they strip the leaves. The food is several species of Oak, examples of which have been named at Kew. What is called by the Chinese *tsing-kang-lew* is considered to be *Quercus Mongolica*. Their *hoo-po-lo* is *Q. obovata*, and a third

kind named *tseen-tse-tszeo* is *Q. serrata*, and this is supposed to produce the finest worms. With us the worms give a preference to the leaves of the Evergreen Oak, but they feed freely upon our common British species of *Quercus*. Not only are the caterpillars easy to rear, the moths are found to pair very readily, another circumstance in favour of *A. Pernyi* compared with its relatives *Polyphemus* and *Yama Mai*. The species is hardy enough to live out of doors in England if birds and predatory insects would keep away from the worms.

The Chinese informed Mr. Meadows that the spring worms were of more rapid growth than the autumn brood, coming to their full size in about sixty days, while the latter required ninety, or even a hundred. He observed that if all the available spaces on the sides of the slopes were planted with Oak, the yield of silk might be ten times as much as at present. With their wonted omnivorous tendencies, the Chinese are said to cook the chrysalis, regarding it as a delicacy.—J. R. S. C.

GAS-TAR WALKS.—Dry mild weather at this time of year affords the season for making or repairing the surfaces of gas-tar walks. The



Fig. 77.—Cocoon of *Attacus Pernyi*.

two requisites are—first, good drainage, which is secured by about 8 inches of broken stone pounded compactly down, with free outlet for water at the lower end; and second, a waterproof layer over the top. The whole being thus kept dry is as little harmed or disintegrated by frost as the stone walls of a building while covered by a roof. A very cheap waterproof surfacing is afforded by mixing sand or sifted ashes or cinders with gas-tar until the whole is saturated, yet not fluid, but about the consistence of damp snow or sugar, and capable of being packed down solid. The mixing is easily done when all the material is warm and the sand or ashes dry. There appears to be no advantage other than that in heating the tar. The stone foundation being covered with cinders and rolled or beaten solid, the mixed preparation is spread on about 2 inches thick and well packed down. The packing is often done with a roller, but a beating with a spade-back is best if the mixture sticks on the roller, as it is apt to do if damp sand is used. Sometimes a roller is used to finish smoothly, or a flat-bladed shovel weighted with hot bricks is drawn over. This leaves a very smooth, compact, even surface. A covering of sand and a board laid over for the first weeks of use will prevent heel marks, &c.

being impressed into the freshly laid pathway. A curb of brick or plank soaked in petroleum serves to keep the edges even. Sometimes the walk is made slightly lowest in the middle in order to keep the edges as dry and free from danger of crumbling as possible. If the surface should crack during the summer following it should be well brushed over with tar on a warm dry day to fill all fissures, and if sand is sprinkled over it can be immediately used. An old broom serves to do this well and quickly. It is said, we know not how true, that a little sulphuric acid put into the tar serves as a thickener and drier. A heating of the tar before using answer the purpose probably as well. This sort of path is easily kept clean, and all rain runs off. A gallon of tar will suffice for about 8 square feet of coating 2 inches thick.—(*New York Tribune.*)



HARDY FRUIT GARDEN.

WHERE trees against walls have lost their leaves commence pruning and nailing at once. Apricots are usually the first to lose their leaves, closely followed by Cherries, Plums, and Pears. Where time can be spared it is desirable to loosen the trees from the wall. When time cannot be spared for the entire disengagement of the trees they should be carefully examined to see that none of the ties or shreds are too tight. Any old bare wood should be cut out and young trained in its place, also thinning the spurs where too crowded, and shortening any spurs that have grown to a considerable distance from the walls. This in most instances is all that is required for Apricots where summer-pruning has been duly attended to. Plums will only need any attenuated spurs shortened, and where too crowded judiciously thinned, whilst shoots more than 3 inches long should be cut back to a couple of joints from their base, but any short stubby shoots should not be shortened. Cherries and Pears should be treated similarly. Trees in course of formation must have the main shoots disposed 9 to 12 inches apart, and be trained in their full length unless their extremities be unripe, when they should be shortened to firm ripe wood. The central shoots will likewise need to be cut back to originate shoots at suitable distances for furnishing the trees. If the trees have been infested with aphides or other insect pests it will be advisable to dress the wall as well as the trees with an insecticide. Half a gill of petroleum mixed with four gallons of water will prove fatal to most insect larvæ. For scale on Pear trees whale oil is efficacious, and it is equally so against American blight or woolly aphides. After the trees have been pruned, nailed or tied, the loose surface soil should be removed down to the roots, and a good dressing given of good rich compost; turfy loam, with an equal proportion of well-decayed manure, and about a twentieth part of charred vegetable refuse intermixed will be beneficial. Borders that have received heavy dressings of manure for vegetable crops will be benefited by a dressing of unslaked lime. Half a bushel per rod will be a suitable quantity, pointing it in.

The season so far has been very unfavourable for planting fruit trees on heavy soils. With a change for the better no time should be lost in planting the trees contemplated; but with the soil in a wet state it will be preferable to defer planting until spring, this especially applying to cold heavy soils.

STRAWBERRIES IN POTS.

The earliest batch of these will now have well-developed crowns, and be at rest so far as top growth is concerned; but the roots are still in a more or less active state, and under no circumstances must they be allowed to suffer by want of water, it being necessary that they be kept in a thoroughly moist condition. The plants intended for early forcing should be moved to a cold frame, the pots being plunged in ashes, the lights only being employed in case of heavy rains and when frost prevails. Plants for successional forcing will succeed very well plunged to the rim of the pots in ashes in a sheltered situation open to the sun, where protection can be given them in severe weather, a little dry litter being all the protection that is needed. See that none of the plants lack moisture, as a dry condition of the soil is very injurious.

FRUIT HOUSES.

Pines.—The most useful structures for the general requirements of Pine plants are properly heated and ventilated pits or small houses, as with little labour they afford the most suitable atmospheric conditions; but the closeness of these structures will at this season necessitate strict attention to the ventilation, or the plants soon become drawn and weakly—a condition that is irremediable, and should be strictly guarded against by commencing to ventilate a little at the top of the house at 65°, and unless the temperature in the house falls below that degree the ventilation should be continued throughout the day. When external influence raises the temperature in the house to 75° a free circulation of air should be allowed through the house or pit. Keep the plants near to the glass, and do not crowd them: 60° at night is a suitable temperature for all young stock to be kept gently moving through the winter, falling a few degrees when the weather is severe, and 65° in the daytime by artificial means. The heat should be kept steady at the roots at 80°. Avoid too much moisture in the house. If the plants are in fermenting beds sprinklings will not be necessary, but water—weak liquid manure—must be given whenever the plants become dry. If there be likely to be a scarcity of suckers for starting next March it will be advisable to keep for this purpose those which are ready now, as well as recently potted ones, which thrive best wintered in 5-inch pots. Instead of potting the suckers now ready it will be best to keep them on the stools after the fruit is cut, cutting off the leaves and placing the suckers in a moist pit with a bed having a slight bottom heat and a temperature of 55° at night and 60° to 65° by day, keeping near the glass and moderately dry at the roots. Continue former instructions in other departments.

Vines.—The excessive rainfall and consequent saturation of soil and atmosphere have caused an unusual amount of damping, particularly in Hamburgs and other thin-skinned varieties. Slight fires will be necessary in the daytime to allow of ventilation, but an equable temperature should be maintained as far as practicable, 45° at night being suitable for Hamburgs and 5° more for Muscats. Although a dry atmosphere is advisable it must not be produced by too much fire heat, or the Grapes will shrivel, a similar result accruing from too dry a condition of the internal borders. These should be neatly covered with straw or mats, which will keep the soil in a good condition as to moisture. Outside borders, it is presumed, have been covered with shutters, lights, or other protective material against rains some time ago, if not it must not longer be delayed. Vines from which the fruit has been cut should be pruned, and not being required for plants should be kept cool by free ventilation, merely excluding frost, as a few degrees of frost will not do them any harm. Remove the inert surface soil down to the roots, and add good loam and a few half-inch or crushed bones. The house must be thoroughly cleansed and the Vines dressed, especially if they have been infested with red spider or other insect pests.

Frequently turn over the litter in very early houses, and replenish as the heat declines by working in fresh material direct from the stables. Similar remarks apply to outside borders, which if not covered with fermenting materials should at least have shutters or a good covering of straw or dry fern, with a slope so as to throw off heavy rains, and prevent the roots of the Vines being chilled and a predisposition given to shanking and other ills. The earliest-started Vines in pots and houses will be showing signs of breaking, and should have the temperature increased to 60° at night and 65° in the daytime artificially, advancing to 75° from sun heat. Very little ventilation will be needed for some time to come, giving it when necessary at the top of the house.

Cucumbers.—Careful attention in the admission of air will be needed for some months to come; and as no opportunity should be lost of affording a little, it should not be admitted so as to lower the temperature, and certainly ought to be excluded when the air is cold, a few degrees extra warmth from sun heat being better than a cold current of air. A night temperature of 65° or 60° on cold nights will be sufficient, with 70° to 75° in the daytime. In dull foggy weather be very sparing of moisture, and cease to charge the evaporation troughs, but in bright weather a good amount of moisture will be necessary. Cut over the foliage regularly every week,

encouraging as much fresh growth as can have exposure to light, but avoid overcrowding and overcropping as the greatest of evils.

PLANT HOUSES.

Epacris.—These are coming into flower, and if encouraged with a slight heat will soon be in full beauty. They are fine for conservatory decoration, their long shoots being excellent for cutting, and especially useful in large vases. In flower now are *Ardentissima*, *Salmonea*, *Lady Panmure*, *The Bride*, *Devoniana*, *Eclipse*, *hyacinthiflora*, and its vars. *carminata* and *candidissima*; *miniata splendens*, *Vesuvius*, and *Viscountess Hill*.

Heaths.—These, though not so accommodating as *Epacris*, are not, however, injured by employment for a few weeks when in flower in the conservatory, provided they are kept in a light, airy, cool part of the house, and not too crowded, the last spoiling more plants than anything else. Some of the best for winter are *Erica hyemalis*, *E. gracilis autumnalis*, *melanthera*, *persoluta alba*, *ventricosa* vars., *caffra*, *colorans*, *grandinosa*, *scabriuscula*, *regerminans*, *candidissima*, *mammosa pallida*, *cerinthoides coronata*, and *Lambertiana rosea*.

Lachenalias.—These are useful plants, pretty alike in foliage and flowers, they being easily grown. A position on a shelf near the glass should be given them, and, growing as they now are freely, a little weak liquid manure should be given occasionally. They do well in sandy loam, and do not require a great deal of pot room. A dozen bulbs can be grown well in a 6-inch pot; six or eight in a 5-inch.

Tropæolums of the tuberous section, as *tricolorum*, *Jarratti*, and *pentaphyllum*, are not so common as they deserve to be, few plants being more effective when well managed. Early training is necessary, so as to cover the bottom part of the trellis with young growth before the shoots get to the top, or there will afterwards be a difficulty in furnishing them well at the base. They do not require a great amount of pot room, ought never to be overpotted, and should not be overwatered, just keeping the soil moderately moist, or allow to become fairly dry, and then afford a supply of water.



THE ART OF BEE-KEEPING.—No. 2.

NATURAL HISTORY.

THE basis of successful bee-keeping is an accurate knowledge of the instincts and habits of bees. Matters of detail, such as their anatomical structure, the mathematics of comb-building, and the peculiar harmony between the structure of flowers and the bees that fertilise them, can scarcely be expected to occupy space in a series of papers purposely limited to what is of most practical importance to bee-keepers. Students of natural history desirous of entering into these most interesting details are recommended to such works as those of Huber, Bevan, Darwin, and Lubbock. We meantime confine ourselves to outlines of practical importance.

First of all we invite attention to that feature in the honey bee which makes its domestication possible—viz., its perfect *sociality*. While other bees and wasps are only semi-social—that is, exist as colonies during only a part of the year, the hive bee maintains its social habits from one season to another. While the queens of wild or bumble bees and wasps exist by themselves during the winter, and develop all the instincts and powers necessary to originate colonies during the following spring, the queens of the hive bees cannot exist apart from the workers, and possess no power of building, foraging, or even of nursing their own progeny. In harmony with this special character the hive bee finds a high temperature necessary for all active operations inside the hive, in this respect resembling warm-blooded animals. Ordinary temperatures soon chill both bees and queens, and cause the death of their young; while under these same conditions the wild bees and wasps exist even in a solitary state, their young hatching without any brooding heat. These facts have an important bearing on the question of hives, their material, capacity, and management.

Notwithstanding the immense importance of the *queen* in a colony as the mother bee and centre of attraction, the *workers* are the agents on whose labours and instincts the colony is maintained, and to which the bee-keeper mainly looks for the results of his attention. Let us therefore shortly consider the ways of the workers, leaving the queen to be dealt with in a special chapter.

The worker is the typical bee, the bee of our childhood, the “busy busy bee” of the poet, the bee for whom both queen and drones exist, and without whom they would cease to be. They are the active agents in all the offices which bees seem destined to fill in the economy of Nature, the unwearied producers of the honey and wax we so much prize, and seem specially destined for the important work of fertilising blossoms. Numerically and potentially they are far the most important inmates of the hives, and the bee-keeper’s aim should be to discover in what ways he can best assist them in their willing work. Nature must be studied with a view to giving her assistance—all attempts at thwarting her must prove ruinous. Such sentiments do not, however, give any encouragement to the let-alone system of bee-keeping, which is so often boasted of as the more natural one. In it little or no assistance is afforded to the bees—calamities are allowed to come as they may, stocks perish of queenlessness or disease, a greater or less per-centage are allowed to die of starvation every year, and the survivors are cramped for room to store their supplies, till they are forced to swarm and swarm again as they never do in a state of nature. Let us remember that reason is superior to instinct, and that the latter often finds itself in straits and ready to accept help from the former.

Worker bees are hatched in about twenty-one days from the egg—viz., three days in the egg, four days as a larva, and fourteen days in the scaled state. They do not generally leave the hive till about a week old. As in the grub state they do not seem to void any excrement, their bowels are generally pretty much distended with the excreta of their food, and their first flight seems mainly with a view to clear themselves. Bees bred in winter, as from untimely feeding, are thus in danger of perishing either through distension of the bowels or while endeavouring to take the needful flight. The early stages of the bee’s life are occupied with the labours inside the hive: preparing and supplying the pap for the numerous larvae, sealing them up when about to change into chrysalides, cleaning out the cells just vacated by hatching bees, feeding the queen, secreting wax, and building combs. As they grow older they partially lose the instinct for such employments, and probably also the power, and betake themselves to the fields as foragers for the community, or take their turn as sentries and defenders. Thus old bees that happen to become queenless often seem either indifferent to their loss or unable to avail themselves of the chance of raising a new queen, and in this queenless state will often keep together, and carry on their foraging for months, or until they dwindle away altogether.

Each of the operations above referred to seems to be the result of a special and highly endowed instinct. We have already noticed how their *social* instincts keep bees together as a colony, preserve the due relations between the queen and the workers, and award to each individual a share in working for the common good. The same instincts work in apparent discord when the time comes for casting swarms, when the colony is split and split again as swarm after swarm departs. But there is no contrariety: all is done without discord or strife, all is done for the common weal. The bees, whether they realise it or not, are, in the act of swarming, making the very best provision for the continuance of their species. Were there no swarms there would soon be no bees, for it is only a question of time when every colony would perish from one or other of the evils of queenlessness, disease, or robbery.

In considering the attitude of the bee-keeper towards these social instincts we must remember that bees are kept by us in circumstances not altogether natural. Our hives are necessarily very different from the abodes naturally selected by the bees themselves. In regard to these, it should be our aim to furnish a habitation so arranged as to encourage every object for which bees cluster together, due provision being made for warmth, ventilation, and storage. We must remember also that circumstances may arise where instinct will be powerless, such as queenlessness or disease; or that circumstances alter matters, as when a large number of colonies are kept close to each other, in which case the production of drones sufficient to fertilise all the queens of a neighbourhood may be restricted to a single stock or to a few from each. In regard to swarming, too, it should be remembered that bees learn nothing from previous experience, those of a former year having long since perished. They have no idea how long or how short the honey season in any locality may last, consequently they may and do often indulge the swarming instinct to an excessive extent, and that, too, at a season when, in their own interest as well as ours, it should either be strictly controlled or altogether prevented.

In like manner the bee-keeper should take into account the other instincts of his bees. The *provident* instinct should be encouraged to the utmost, room for storage being provided at all times slightly in excess of immediate requirements, so that no idle clustering bees may be found hanging about the hive entrances, and the bee-keeper should know how to aid his bees by timely

feeding, whether of syrup or pollen, when from ungenial weather their instincts are baffled by the poverty of natural supplies. The possibilities with strong stocks properly aided in this way are immense, for the bees are not content with gathering enough to supply their immediate wants, but make provision for themselves and their successors for many months to come. Lazy bees mean a lazy and ignorant bee-keeper, who leaves his hives unsupplied and un-eked, till from sheer want of storage room his bees, gorged with honey, hang idly all around.—WILLIAM RAITT, *Blairgowrie*.

(To be continued.)

COSTLY HIVES AND RESULTS.

THE question of profit and loss in bee-keeping is important to a great number of apiarians, and ought to be the essential consideration in practical apiculture; but for some reason or other it has not of late been much discussed. The sooner this question comes to the front and receives due and general attention the better it will be for apiculture and beginners. During the last ten years money has been wastefully spent on new hives, and during that time there have been great losses and failures in bee-keeping. Some working men and others higher in station write and tell me of their losses and disappointments, and it is lamentable to know they are samples of others throughout the land who have bought costly hives and bee furniture which as yet have yielded no return for the outlay. How long will such unwise expenditure continue? Stories are told even in Lancashire and Cheshire of gentlemen and working men spending money lavishly on new bees and costly hives, almost all ending in disappointment. What did the late Mr. Quinby, who was one of the most extensive and enlightened bee-keepers of America, say touching this question? He said 1s. 6d. is enough to give for a hive, and every cent or halfpenny beyond 1s. 6d. per hive would yield no return for the extra outlay. Mr. Quinby wrote for the advantage of American bee-keepers, and though he used wooden hives he predicted that some day straw would be preferred to wood; but here we should bear in mind that wood is cheap in America, and that hives of sufficient size, either in wood or straw, cannot be had in England at that price. However, beautiful, excellent, and capacious hives can be had in this country at a price cheap enough even for working men. Only twice have I paid more than 5s. for hives, and these were in wood, and when English apiarians hold broader views of bees and bee-keeping than most have at present, expensive hives will speedily go out of fashion.

Hive-dealers are having the best of it just now, but no one can blame dealers for making the best of their goods. Ten years ago I was somewhat anxious to see the prize hive of the Bee-keepers' Association. In one of the midland counties I saw it in the apiary of an advanced bee-keeper. It cost, I think, 35s. I examined it, and came to the conclusion that I would not accept the gift of a dozen of such hives for my own use if they were offered. Some time afterwards the gentleman wrote to me that the others in his garden, which cost only about one-eighth of the price of the prize hive, were far superior to it for work and profit. I trust no one will be offended at my suggestion that it is desirable the British Bee-keepers' Association should not offer prizes at their shows for costly hives. By withholding prizes from hives beyond a certain price the gentlemen of the Committee will express their disapproval of a practice not advantageous to bee-keeping.

In order to succeed and make money of bees the utmost economy is necessary. Expenses must be kept low. For years I published annually the balance sheet of my apiary, and in doing this I saw the importance of rigid economy. Another point became more and more evident—viz., that if bees have room enough and are let alone they will seldom disappoint their masters. Meddling with bees is not good for them. Since I began to write these letters on the Stewarton hive an Ayrshire correspondent has informed us through the Journal that some bee-keepers there have used the straw Stewarton for years. I am greatly pleased to know this, for it shows the thought we have been dwelling upon has long since passed into established practice. Both Mauchline and Stewarton are Ayrshire villages situate a few miles from Kilmarnock. I shall now arrange to have twenty or thirty straw Stewartons made for my swarms next season, about 15 inches wide by 14 deep, neatly sewed. I expect they will be pretty hives, as useful as hives can be, and cost about 5s. each. If the reader has seen a bushel measure—which is 16 inches deep and 14 wide—he will be able to form an accurate idea of the shape and size of my Stewartons. I am obliged to a gentleman in Aberdeenshire, who has written privately to say that supering bar-frame hives there is not done through a hole in their crowns, but through a modification, as it appears to me, of the Stewarton principle. Mr. Raitt

is probably the inventor of this way of supering bar-frame hives, for he practises it and instructs others to do so. We may therefore expect to get some time a full description of this mode of supering. If the Stewarton hive appear in straw and become a general favourite, I would not advise working men to abandon their present hives and get Stewartons. By removing the crown boards of bar-frame hives, and adopting the Stewarton principle of supering, much may be done at little expense. Commending the consideration of this subject to bee-keepers generally I leave it for the present.—A. PETTIGREW.

TRADE CATALOGUES RECEIVED.

James Cocker & Sons, Aberdeen.—*Catalogue of Roses, Trees, and Shrubs.*

T. Laxton, Bedford.—*List of New Fruits and Vegetables.*

James Dickson & Sons, Newton Nurseries, Chester.—*Catalogues of Forest, Fruit, and Evergreen Trees, Roses, Hardy Flowers, &c.*

Francis and Arthur Dickson & Sons, Upton Nurseries, Chester.—*Catalogue of Forest and Ornamental Trees and Shrubs, Fruit Trees, Roses, &c.*

L. Spath, Berlin.—*Catalogue of Plants.*

H. Cannell & Sons, Swanley, Kent.—*Catalogue of Roses Chrysanthemums.*



* * * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (J. M. B.).—Mr. Cuthbert Johnson's work on fertilisers is published by Messrs. Ridgway, Piccadilly, London. (*A. Booth*).—"Hops from the Set to the Skylight," by Charles Whitchcad, F.L.S., published by Effingham Wilson and Co., Royal Exchange, will answer your purpose. (*D. Watson*).—There is no work so "cheap, concise, and comprehensive" on the culture of plants, fruit, and vegetables as our "Garden Manual," price 1s. 6d., post free from this office 1s. 9d. (*J. D.*).—Simmond's "Tropical Agriculture," Spon, Charing Cross, will probably suit you. It can be had through a bookseller. Shaw's work on "Market Gardening" (37, Southampton Street), and Earley's "Profitable Market Gardening" (170, Strand), might give you some of the information you are seeking.

Unlevel Houses (J. E.).—So far as the heating of the houses and the circulation of the water is concerned you may have the structures as much out of level as you like. When not level and square they cost more to build and do not look well when completed. Some of the finest crops of Grapes we have seen are grown in houses "out of level."

Apples for Market (J. E., Ireland).—The letter to which you refer certainly never reached our hands. If you will state the number of trees you require, whether standards for orchard or otherwise, or name the extent of ground you desire to occupy with trees, we will readily name varieties that are likely to be useful.

Pears for Wall (G. P., Hants).—Your reference to a "former letter" is insufficient. In our great mass of correspondence it is impossible for us to remember the purport of former letters. If you want simply twenty-four varieties of Pears for succession we will publish their names next week; but any information that you may need different to or beyond this can only be given on your repeating your requirements.

Auriculas in Frames (A Beginner).—The plants will be far better in the frame than crowded amongst others in a greenhouse. Provided they are moderately dry at the roots, and the frame is in a sheltered position, they are not likely to sustain any injury by frost. Still, if the weather is severe you will not err by packing straw round the sides of the frame and covering the glass with mats or other protective material. We have had the soil in the pots frozen quite hard and the plants sustained no injury, but they are injured if frosted in the spring after growth commences. It is then that protection is needed more than at any other time.

Dahlias in Winter (J. Allen).—It is quite true that Dahlias will pass the winter safely in the open ground provided the soil is light and well drained, and ashes or cocoa-nut fibre refuse are placed over the roots and for a good distance beyond their extremities; but not only will the blooms which the plants produce next year be late, but they will be small, and in all respects inferior to those afforded by plants that are raised from cuttings established early, well prepared, sturdy and strong, for planting towards the end of May or early in June in deeply trenched and rich soil. Dahlias should be taken up at once, carefully dried, and be wintered where they will be perfectly safe from frost.

Jersey Gratioli Pear (J. E. B., Surrey).—This is an excellent Pear, and you may safely plant it in your garden where you say Pears usually do so well. The tree grows well and bears freely, the fruits being juicy, vinous, and enjoyable.

This variety is known in Jersey by the name of Gratioli, and under this name it had for some years been grown by Mr. Norris of Sion Hill, Isleworth; but as Gratioli is the Italian name of Bon Chrétien d'Été, to prevent confusion Mr. Robert Thompson named the present variety Jersey Gratioli. It must have been a considerable time in this country, as there is a tree growing in the garden of H. M. Bucknall, Esq., of Bedminster Lodge, near Bristol, which he considers (1856) to be fifty years old. Specimens from Mr. Bucknall and from Mr. Norris were both one variety.

Stove and Greenhouse Plants (M. T.).—There is no small manual of such a comprehensive nature as you appear to require. The "Cottage Gardener's Dictionary," which can be had from this office post free for 8s. 3d., gives information on the culture of all kinds of plants, fruits, and vegetables, also on the different methods of heating glass structures; but no work contains plans of heating precisely adapted to your small house. There are ironmougers in nearly all towns quite able to do what you require satisfactorily.

Rochea falcata (A. Boyle).—An ordinary greenhouse is suitable for wintering this plant, which is quite safe in a temperature of 40° as a minimum. The plants should be kept rather dry at the roots in the winter, and the atmosphere of the house dry also. Water applied once a week or fortnight, or even less seldom according to the weather, is usually sufficient until February, when more moisture must be gradually afforded, and a very light position be assigned to the plants. During their season of growth they cannot be too much exposed to the sun. They are planted out in the flower beds of some of the London parks in the summer, and strong plants produce larger heads of scarlet flowers.

Standen's Manure (Worcester Subscriber).—In reply to your question as to where Standen's manure can be bought, as you "never saw it advertised," we believe it is sold by most nurserymen and seedsmen. Messrs. Corry, Soper, Fowler & Co., 18, Finsbury Street, London, E.C., are the proprietors, but we are not able to say whether they sell it retail or not. This excellent manure is perhaps not sufficiently advertised.

Carnation A. Alegatiere (M. T., Halifax).—If you mean by a "tree" Carnation a variety that flowers freely and continuously you may include this in your collection, but it is so dwarf in habit that the term "tree" is a misnomer. It is one of the dwarfest, brightest, and floriferous varieties we know, and flowers with great freedom in winter when the plants are young and vigorous. A light house, with a temperature of 45° to 50°, is essential for insuring a supply of Carnations through the winter.

Planting Potatoes in the Autumn (B. L. E., Surrey).—In some soils, seasons, and districts autumn planting has been successful, but we believe it is neither adopted as a system by those who grow tubers for exhibition nor for providing them in quantity for the market. It is not a new system by any means, but has been practised more or less for at the least half a century. If you choose to try the plan the present is the time for inserting the tubers, covering them quite 6 inches deep; but we decline the responsibility of advising you to plant your entire stock, or even half of it, now. You had better try the method on a small scale as an experiment, and judge for yourself.

Pruning Clematises (G. Godson).—They do not require pruning so severely as you have been informed. If you examine the stems you will find some round buds as large as peas, and to these buds the growths may be shortened. We should not prune the plants at present, as if the weather should prove mild fresh growth might be produced almost at once, and receive injury by subsequent severe weather. The longer the buds indicated remain dormant the more likely are the young growths to escape destruction by frost. February is a good time for pruning Clematises, and we should not prune them before then, unless the appearance of the plants was objectionable.

Pruning Fig Tree (Svanley).—The reason your Fig tree did not bear when it was pruned severely was because the subsequent growths were too strong and luxuriant. Such growths always follow after close pruning unless the roots are pruned also. As the tree is now objectionable in appearance you may remove those growths or branches that are strong, securing those of a more stubby and short-jointed character to the wall, not shortening them. This should be done now; but if you remove any considerable portion of the tree, you had better also dig a trench round it and cut off all the roots beyond a certain radius, to be determined by the size and vigour of the tree, and fill the trench with old lime rubbish and similar material, pressing it down as firmly as possible with a rammer.

Cleansing a Vinery (Regent).—No measures that you can adopt now will prevent the red spider attacking your Vines next year if preventive measures are neglected in summer, as appears to have unavoidably been the case this year. After pruning the Vines we should wash the rods with a solution of nicotine soap or Gishurst compound; or, failing these, softsoap, using 4 ozs. of either to a gallon of water, applying with a brush, scrubbing the Vines well with the solution hotter than the hand can be borne on it, or say at a temperature of 150°. If you have not time to crush the sashbars, similarly syringe the roof freely with boiling water; limewash any exposed wall surface, mixing sulphur in the wash, and remove the surface soil if the border is inside, and add fresh. A portion of the roof can be done at once, removing the plants for that purpose, and those on the back wall can be covered with mats to prevent them being injured by the hot water. We shall be obliged if you will inform us with what plants your "unbeaten vinery" is filled during the winter, and the names of the climbers on the wall.

Planting Anemones (D., Hampstead).—It is not too late to plant the tubers, but the sooner they are placed in the beds the better. You will find in our "Florist Flowers" (price 4½d.), that the Anemone requires a pure loamy soil well mixed with sand, such as sometimes is found on the sides of rivers naturally mixed with the sand. Choose a situation that is open, but sheltered from violent winds or strong twisting currents of air; then dig out the soil a foot or more according as the situation is high or low. If high it may be dug out 3 or 4 inches deeper, but if low and wet a foot will be sufficient. Mix the soil with sand if it requires it, and fill in the bed again to within 6 inches of the level of the surface; then level it, and lay on it a thin covering of thoroughly decomposed hotbed manure or cow dung, the latter is to be preferred. Mix this well with the soil below. Upon this mixed enriched soil place as much of the pure sandy loam as will raise the bed an inch or two above the walk. No dung must be among this top stratum of soil, because dung causes the peculiar disease called mould to attack the bulbs that come in contact with it. The best season for planting is from about the middle of October to the first week in November, the bulbs then form roots before severe frosts set in. Should the planting be unavoidably delayed, the bed must then be covered with fern or straw. Choose a time when the soil is moderately dry and the day fine. Draw drills across the bed 2 inches deep and 5 or 6 inches apart, and plant the tubers 5 inches apart in the rows. For choice varieties a thin layer of sand scattered under and around each tuber will be useful. As soon as the bed is planted cover the tubers with

sandy loam from a basket or wheelbarrow. Take care that the tubers are placed the right side up, by observing the side that has the old small fibres on it. That side place next to the bottom of the drill. When all are planted and covered up to the right depth—2 inches, then level the surface with a garden rake. If the plants have any kind of covering and the weather prove mild, the covering should be removed and replaced on the likelihood of a return of frost, and when the spring sets in remove the shelter entirely. Should the weather prove dry in spring give a thorough watering now and then. The bloom will be greatly prolonged if an awning of canvas, or even garden mats, be stretched over the bed upon a frame of hoops to shelter the flowers from the sun, from high winds, and heavy splashing rains. All weeds must be plucked up as they appear, and a diligent watch kept for snails and slugs.

Imported Orchids (Birkenhead).—The Orchids appear to have been very incorrectly named. 3 is probably Galeandra Devoniana; 4 is a Catasetum; and 5 is Epidendrum bicornutum; at least these are doubtlessly the names intended, though whether you have the plants true of course we cannot decide. They will not thrive in "a cool house," if by that you mean an Odontoglossum house, and they must not have a lower minimum winter temperature than 55°, and 60° would be much safer and preferable. If they are not showing any growth place them in a stove on a shelf or bed where they can be lightly syringed, but not frequently. When there is an indication of growth commencing pot them all in a compost of fibrous peat, sphagnum, with a good proportion small pieces of charcoal, well draining the pots and elevating the crown of the plants slightly above the rims. Give water liberally as growth progresses, and diminish the supply as it becomes matured. The Epidendrum is rather difficult to cultivate, but the following notes by an experienced Orchid grower who has been very successful with it will explain the treatment required.

Culture of Epidendrum bicornutum (Idem).—"The best way to grow it is in baskets suspended from the roof, or on pieces of Tree Fern stem. I have grown and flowered it under both systems, and if grown in baskets a compost of very fibry peat, moss, and charcoal should be employed. The plant roots freely in its natural habitat, but is rather shy-rooting under cultivation. The plant is a native of the West Indian Islands, particularly Trinidad, consequently it requires the temperature of the East Indian house. Having a friend living in Trinidad, I wrote him for particulars with regard to where it was found and under what conditions, and I will give his reply as I received it. He writes, 'With regard to your questions respecting E. bicornutum, if I tell you how I collected it no doubt that will suffice. I went out one day last week, hired a boat to carry me to the Five Islands, a group of irregular size, standing at no great height out of the water, in one bend or basin of our harbour, which may be called rocks left after the severance of that part from the mainland by the encroaching influence of the sea. Round these islands one can sail and soon load his boat by pulling the tufts off the ledges of the rocks or any cavity. It is subject to drenchings of water by the action of the waves, is generally fully exposed to the sun, and as it is surrounded by water the plant must be subject to heavy dews owing to the great variation in temperature of the land at night. I soon collected a load, though I am afraid they are too much advanced in growth for travelling.' By these remarks it is easily perceived that the three most essential requirements of E. bicornutum are heat, exposure to sun, moisture, and a moderately low night temperature, and if these be carefully attended to it should make satisfactory progress. Any trouble bestowed on it will, I am convinced, well repay the cultivator."

Names of Fruits (R. J. Lynch).—1, Gloria Mundi; 2, Hawthornden; 3, Fearn's Pippin; 4, Golden Noble. The Pear was too far decayed to be recognised. (Stiford).—Urbaniste. (T. Trollope).—Golden Pippin. (J. L. B. J.).—These are probably local varieties, except 6, which is Lemon Pippin. 1 resembles Mère de Ménage, and 5 Reinette de Canada. (Cambridge).—Pears: 1, Comte de Lamy; 2, rotten. Apples: 1, Melon Apple; 2, Cox's Orange Pippin. The other we do not recognise. Were not the names sent with the trees from Sawbridgeworth? (An Old Subscriber).—Large Apples Beauty of Kent, the three small green ones Stamford Pippin.

Names of Plants (Subscriber).—1, Thuia occidentalis; 2, Cedrus atlantica; 3, Juniperus virginiana Schottii; 4, Thuia Lobbi; 5, Juniperus communis hibernica. (Grantham).—Chrysanthemum segetum. (J. Humberstone).—1, Eupatorium odoratum; 2, Epiphyllum truncatum, var. Russellianum; 3, Cestrum aurantiacum; 4, Salvia Branti; 5, Erica colorans; 6, Lasiandra macrantha. (W. D.).—1, Asplenium viviparum; 2, Pteris scaberula; 3, Adiantum trapeziforme. (Oatlands).—1, Odontoglossum Halli; 2, Oncidium crispum.

COVENT GARDEN MARKET.—NOVEMBER 22ND.

TRADE steady with little to note. St. Michael Pines are now to hand, considerably affecting home produce; but good well-grown fruit will still find a ready market. Kent Cobs are firm, with a slight rise.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 0 to 7 0	Lemons.....	case 20	0 to 30 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	2 0 3 0
Cherries.....	½ sieve	0 0 0 0	Nectarines..	dozen	0 0 0 0
Chestnuts.....	bushel	10 0 12 0	Oranges.....	100	6 0 10 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen ..	dozen	1 0 2 0
Figs.....	dozen	0 6 1 0	dessert.....	dozen	1 0 2 0
Filberts.....	lb.	0 6 0 0	Pine Apples, English	lb.	2 0 3 0
Cobs.....	100 lb.	45 0 50 0	Raspberries.....	lb.	0 0 0 0
Gooseberries....	½ sieve	0 0 0 0	Strawberries....	lb.	0 0 0 0
Grapes.....	lb.	1 0 3 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Lettuces.....	score	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mushrooms.....	punnet	1 0 1 6
Beans, Kidney....	100	1 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beet, Red.....	dozen	1 0 2 0	Onions.....	beh.	0 6 0 0
Broccoli.....	bundle	0 9 1 6	Parsley..... doz. bunches	3 0 4 0	
Brussels Sprouts..	½ sieve	1 6 2 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 0 6 0
Capsicums.....	100	1 6 2 0	Potatoes.....	cwt.	6 0 7 0
Carrots.....	bundle	0 4 0 0	Kidney.....	cwt.	6 0 8 0
Cauliflowers.....	dozen	2 0 3 0	Radishes.... doz. bunches	1 0 0 6	
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz. bunches	2 0 4 0		Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 8	Scorzonera.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	2 6 3 0
Fennel.....	bunch	0 3 0 0	Shallots.....	lb.	0 3 0 4
Garlic.....	lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bundle	0 2 0 0	Tomatoes.....	lb.	0 4 6 8
Leeks.....	bundle	0 3 0 4	Turnips.....	bunch	0 2 0 4



POULTRY AND PIGEON CHRONICLE.

NEGLECTED PASTURES AND WASTE LANDS.

(Continued from page 438.)

THE best and most economical means of renovating exhausted farms which have been abandoned by their occupiers or left upon the hands of their proprietors in poor condition now deserve attention. To illustrate this matter we cannot do better than support our experience by the writings of Sir J. B. Lawes, whose opportunities for a long period in the manuring and cropping of his experimental plots at Rothamsted give him the means of supplying the information which is required by the home farmer. In describing "an abandoned farm" he says: "Not far from where I live there is an unoccupied farm. It consists of rather more than 300 acres of fairly good but rather strong land. The land is almost all arable, and the late tenant sold almost everything, his system of cultivation being to grow one corn crop after another until the couch grass put a stop to his operations. As I walked over field after field I thought, if it had been my misfortune to have to be the owner of this farm, what should I do with it now? It is quite certain that nothing short of two years of summer-fallowing would make it sufficiently clean to grow corn, and when the land was clean there would be a further large outlay required for manures, as after two years' fallowing it would be poorer in condition than at present. I came to the conclusion that the plan I should adopt would be to leave the land as it was, and without attempting to clean it: that I should put a flock of sheep upon the farm, feeding them with plenty of decorticated cotton cake and folding them at night. At Rothamsted our experiments upon pastures show that the quantity of herbage depends almost entirely on the manures which are applied, and not upon the seed which is sown. As each field was folded over I should harrow in a small quantity of white Clover seed, also Cocksfoot, Meadow Foxtail, and one or two more of the best grasses; but I should trust to the manures and time to eradicate the weeds and couch grass and produce a good pasture. The distinction between this plan and that which most people would have adopted would consist in my spending but little or nothing upon tillage and everything on manure. I should turn the enemies who had taken possession of the land to the best account I could, and should expect to improve them off the surface as soon as I had finished the more vigorous-growing grasses with the proper weapons to effect this end. Whether the land should remain eventually as pasture or as a mixed arable and pasture farm would be a question to be decided in future." This is extremely satisfactory coming from such an authority, and greatly encouraging to any agent or home farmer under the like circumstances. But we shall show next some instances where persons have actually succeeded acting upon these ideas.

We have given Sir J. B. Lawes' statement as to what he would do to renew and renovate land which had been allowed to run to waste, and as far as condition was concerned thoroughly exhausted; we will now, however, give illustrations, some of which have occurred within our experience, which will at the same time show how much in accord with Sir J. B. Lawes' ideas as to what should be done has been done with the greatest benefit. In reading Mr. James Howard's essay on "Laying Down Land to Permanent Pasture," as published in the Journal of the Royal Agricultural Society of England for 1880, we noticed that especial

mention is made of the advantage of sowing Sainfoin or Lucerne on land laid down to grass, in order that a crop of great value may be obtained before a permanent turf could be derived from sown grass seeds. Mr. Howard says that, "Although Mr. Martin Sutton does not favour such a plan of proceeding, yet, from the beautiful carpet of green my field presents this spring, I have every reason to be satisfied with the experiment."

Some years ago we were visiting a farm in a southern county for the purpose of making a valuation of the tenant's claims for seed and tillage on quitting. The farm was on the chalk formation, and the land on the surface a hazel loam, the farm altogether being in very fair condition as to culture. But what we wish to note specially is, that we found one field of twelve acres one mass of couch all over. On remonstrating with the tenant as to the foul condition of the land, he replied with rather an heroic remark that the crops yielded by this field were of more value to him than those obtained from any other field on the farm. Upon further inquiry it turned out that ten acres of this field was in Sainfoin, and two acres near the farm premises was in Lucerne. Now the subsoil being chalk the Sainfoin and Lucerne gave great crops of hay and fodder, the Lucerne in particular giving three cuttings in the year. The tenant claimed that the couch-covering was an advantage, that the Sainfoin and Lucerne derived their nourishment entirely from the chalk subsoil, and the couch during winter protected and gave an earlier growth in the spring, and also retained the moisture in summer for the deep-rooting plants which were fed (when not laid up for cutting) by cows only. The sheep kept from the land, because hungry breeding ewes, would eat out the crowns and buds of the deep-rooted plants, which would then perish, and that when fed the rug of couch gave a full bite at all times for the dairy cows. On full consideration of this statement we could not deny the tenant the advantage which he claimed from his double and valuable crops both of hay, green fodder, and pasturage. Our principal object, however, in naming this matter is to show if the value of the couch was important in connection with these deep-rooted plants, how much better it would be to have a thick mat of the most nutritious and best sorts of pasture grasses in addition to the Sainfoin or Lucerne, and instead of the couch grass. We had always been of opinion that in endeavouring to obtain a permanent turf upon chalk or limestone subsoils it would be advisable to sow Sainfoin and permanent pasture grasses combined as a proper and judicious mixture, for the Sainfoin would be sure to yield full crops before the grasses were fully established.

We have next to quote from a letter which appeared in the *Agricultural Gazette* in January last from a Mr. James Ellis, The Gynsills, near Leicester, who, after having specially referred to Sir J. B. Lawes' letter on laying down foul land to pasture, says, "I know that he is right in the advice he has given as to the cheapest method of changing land filled with couch grass and other weeds incident to arable into useful turf. My father was a successful farmer, and I heard him repeatedly say that his experience was against spending money in cleansing land intended for permanent pasture. I took a small farm in very bad condition when the Leicester and Buxton Railway was opened. About an acre of foul stubble was cut off from an arable field and had to be added to a pasture. Instead of spending money on labour and seed I dressed this acre with 4 cwt. of Peruvian guano, which at that time contained 14 per cent. of ammonia. In four or five years the couch was replaced by white Clover and finer grasses, and at this time no one can tell that this land is not an old turf field. About the year 1870 my sisters had a small field of arable land thrown on their hands; it was near the village, and could be easily let if in pasture for £3 per acre. It was full of couch, Thistles, Mare's-tail, and the lesser Convolvulus. My sisters had no ploughs or agricultural horses, and to hire for fallowing would be troublesome and expensive. I said, 'Manure the land and pull up the Thistles; leave the rest to Nature.' For three years the land was dressed with about 2 cwt. of mineral phosphate and 1½ cwt. of nitrate of soda per acre, put on in the spring and grazed by cows fed on cake. The result was marvellous. In four years the land grazed nearly a cow per acre from May to October. At the end of six years a flower show was held in the field. The Judges, one of whom was a well-known seedsman, said that there was one person who ought to have had a prize, and that was he who seeded this field. I was present, and replied that it was Nature's own seeding. The hand of man had sown nothing, and further, that if anyone would find a field in this neighbourhood I would undertake to produce a like result, however full of weeds the field might be, if I could graze and manure it as I choose for seven years. In 1876 I came into the possession of a very poor farm near a quarry which is worked for road stone. Most of the farm was completely worn-

out arable land, and as an experiment I laid down three fields adjoining on three different methods. One was cleaned and sown with a corn crop and seeded with mixed Clover and Rye Grass; one was cleaned and sown with best permanent grass seeds from Messrs. Suttons, and one was left to Nature. All have since been manured and grazed by sheep and young cattle fed with cake and corn and have greatly improved, but the best of the three is the one which was seeded by Nature alone."

We consider this is one of the most valuable contributions from a practical farmer we have ever seen upon this important subject, and corroborates most entirely the recommendations of Sir J. B. Lawes, which he had based upon his own trials upon the experimental plots at Rothamsted, and showing most forcibly and conclusively the value of scientific researches and experiments when conducted by intelligent and practical farmers. Whenever I have advocated the application of earthy compound manures it has frequently been objected that the cartage of heavy manuring materials was attended with great expenses, and the objectors have advocated the use of light hand-tillage manures, such as guano, nitrate of soda, and bone earth in various forms and conditions. But in a new pasture we have no humus to fall back upon like that of old pasture; we must, therefore, refer to the best and quickest way to obtain this.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses have not been employed on the strong and flat soils in seeding for Wheat for more than a month, and very little has been done even on the driest soils. We know various farms of strong land where no Wheat has yet been sown. A great mistake has been made, and the farmers have been too trusty as far as weather is concerned, or that they have not horse or steam power enough employed on the farms to prepare the land in due season. Every farmer ought to know that the month of October usually gives the heaviest rainfall of any month in the year, and strong land, to be on the safe side, ought to be seeded with Wheat on the average of years during the last week of September or the first week in October, which can easily be done if the land has been prepared at the time, because the drilling under ordinary conditions of the weather is not a long job if the period and the work has been anticipated in a business-like manner. It is reported that on the hills in the north-east of Gloucestershire and parts of Cumberland and other northern districts that a considerable acreage of crops of Oats, Beans, and some Wheat was still in the fields at the end of October. This we cannot help thinking is a matter requiring more attention than it meets with at the hands of many farmers. Why should spring Beans be grown at all in the late climates and cold soils? Why should not early white Oats be grown and winter Beans? Why should Wheat on such soils and climate be grown at all, unless of an early sort? We think that in numerous cases the farmers are more to blame than the state of the weather, because every man should endeavour to make the best provision against adverse weather. Although we may get a favourable seed-time late, every preparation must be made for it, for we well recollect certain seasons when there was no seed-time for Wheat, &c., until December, notably in 1872 and 1841, and some others during our long experience, and the home farmer now ought to be better prepared for adverse seasons than at any former period. Improved implements and improved cultivation, at least if intelligence and caution have prevailed, have been the rule in each succeeding year. Ours is, according to our version of it, the most undefinable climate of any cultivated country in the world. There are, of course, worse climates, but they are known and may be anticipated, whereas we have often endeavoured to anticipate the weather at certain seasons and as often failed.

Hand Labour.—This has been seriously hindered in the fields, &c., during the late heavy rains, and in some of the best pastures in the different counties the floods have prevailed and prevented any customary trenching and ditching being done; in fact, in some districts the work connected with Wheat-sowing, &c., has been prevented, and large areas of land have been flooded, in addition to the pastures. Men, however, at every sea-sonable opportunity, should go, spade in hand, and let off all accumulated water in the furrows where Wheat or winter Beans, &c., have been sown. Besides, the water meadows are now in flood, and require careful and constant attention by the downers.

Live Stock.—All the bullocks now under box-feeding, especially those intended for Christmas, should be kept at a full allowance, say 64 lbs. of Swedes, or 56 lbs. of Mangolds daily. The roots, being passed through Gardener's cutter, should have strewed over them and properly mixed with 4 lbs. of cake and 2 lbs. of Bean, Barley, or Maize, all in the meal state, in order that it may adhere to the cut roots and be eaten without waste. We never feed with hay, only give clean sweet oat straw *ad libitum*, and what they do not eat may be used for littering the boxes and stalls, but we prefer boxes. If we used stalls the cattle should stand in pairs, and be tethered at each corner, so that every animal may get its share without disturbing its neighbour.

POULTRY AND PIGEONS

WHITE DORKINGS.

SOME years since we gave in the pages of this Journal our ideas on White Dorkings. Time has flown since, and we have not abandoned our favourites nor changed our opinion as to their excellence. It is always a cause of wonderment to us that the breed has not become more popular. We seldom see it in anything like purity in the farmyard or the park, nor even amongst fanciers is it extensively patronised, as is proved by the paucity of entries in the White Dorking classes of shows as compared with many other breeds. Surely it is a breed attractive to every lover of beauty, with its pure white plumage and bright coral comb. Its lack of popularity can only be accounted for by the old and, as we believe, utterly groundless prejudice against all white poultry as being delicate. Probably it is a fact that albinos, or white specimens of a race naturally and usually dark, are generally feeble in constitution; but that white races of poultry are so all our experience leads us to deny. We are not, however, now speaking of white birds generally, but of White Dorkings in particular. We have long kept both the Dark and Silver-Grey varieties as well as the White. The young stock are reared in common; all have the same treatment, and our later experience confirms our original conclusion long ago given in these pages—that of the three varieties the White are the most vigorous. We then related that in a certain disastrous season, when our chickens of many races all died, the White Dorkings alone resisted the epidemic and thrived.

We have again had a bad year, though not so much fatal as the one then mentioned to chickens in their earliest days as to half-grown birds. Our experience is the same again. A wasting and incurable consumption has ravaged one of our flocks, but while others were pining and dying of unaccountable exhaustion some White Dorkings among them grew and flourished. Our own experience has been confirmed also by that of others, notably by that of a Scotch correspondent, who years ago wrote to us as a stranger inquiring the breed of fowls we should recommend him to keep for general use on his property in the west of Scotland. To his great surprise we advised him to try White Dorkings. He did so, and has more than once since thanked us for our recommendation, speaking in the highest terms of the hardihood and productiveness of the breed. Our present subject was suggested by the remarks of a contemporary a few weeks ago in a report of the poultry show at the Agricultural Hall, to the effect that the White Dorkings there showed traces of a Game cross. We believe the reporter to have been mistaken, and for two reasons.

1, We know something about all the strains of the winning birds at that Show to which allusion was specially made, and know them to be strains which have been kept scrupulously pure, and that their owners are far too experienced fanciers to make any such injudicious cross.

2, A Game cross would probably so spoil the plumage of a family of White Dorking as to make it unfit for the show pen for generations to come. We have never tried it, but can only conclude that this would be its effect from observing other Game crosses. We have crossed White Game with other white breeds, among them with Japanese Silkies of spotless and glistening whiteness, and the produce have invariably been Piles. It has seemed impossible to breed out the red patches, doubtless from the strength of the Red Game blood, from which the White are descended.

However, though not (as we believe) with Game fowls, White Dorkings have been crossed with White Cochins, Dark Dorkings, Cuckoo Dorkings, and probably with Hamburgs. We have known cases in which the former crosses have been tried, and with disastrous effects as to the purity of plumage. Size is certainly increased, but with it a certain coarseness appears, easily recognised by a practised eye. But the chief evil is an ugly yellowish or brownish tinge of neck and saddle hackle in the cock, and of neck in the hens, in lieu of an even whiteness. The Cuckoo cross, too, has, we know, been made, and after many generations leaves its evil effects in dark feathers, which occasionally appear in the offspring of seemingly the very best stock. That the Hamburg cross has been tried we have not positive evidence, but the small neat combs of one strain, combined with a too elegant slimness of body and frequently white carlobes (a real eyesore), are tolerably strong evidence of it.

The object of these lines is to dissuade fanciers of so useful and beautiful a breed to abstain from spoiling it by such crosses. Unfortunately its admirers are too few, and consequently the

admixture of impure blood in one strain may do much harm. It is not a degenerate or declining race which must at all risks be recruited by the introduction of foreign blood; far otherwise. There are, of course, differences in different strains and families, and even in individual birds of the same strains. Some are of a purer white, others more creamy. Some seem easily tanned by exposure to sun and wet, others are hardly affected by either. Some have a yellowish tinge during the moult, others look at all times snowy. Birds of the latter hue, provided they are vigorous and sturdy, should be selected as breeding stock, and such only. Peculiar purity of plumage is as easily perpetuated by care as any other point. On the other hand, the introduction of a single bird, however fine and correct in comb and feet, which has a taint of alien blood, may do harm to the colour of a strain which can scarcely be undone. There are quite enough separate good and pure strains of White Dorkings to enable their possessors by occasional purchases and exchanges to keep them up in strength and vigour. We do trust that they will do so, and that they will not for the sake of a few extra ounces of weight spoil a race which is probably of the highest antiquity, and certainly in an unusual degree combines usefulness with extreme beauty.—C.

POULTRY NOTES AT THE CRYSTAL PALACE SHOW.

NEVER before in the history of the poultry fancy has so large a collection of birds been assembled at this Show. Over 3000 pens of poultry and some 2400 pens of Pigeons made a collection which, even under the most favourable circumstances, would have somewhat taxed the resources of even such a huge building as the Palace. This year, unfortunately, the Electric Exhibition, announced to be held in November, although it was postponed, caused some of the poultry to be thrust into the side parts of the building. Some—the Ducks in particular—were quite in the dark, and exposed to an extreme of cold which could not but be injurious. We trust the Palace authorities will another year be more mindful of what is due to so old, and, as we believe, remunerative institution as the poultry annual Show.

Dorkings.—Taken generally we cannot say that we thought the Dorking classes as good as those we have seen at other shows, notably at some of the Birmingham meetings. The best dark bird to our idea was the first-prize cock, claimed at £20, a thorough Dorking all round. The cup cockerel is huge, but has many points rather of an Asiatic than of a Dorking. Silver-Greys improve in colour, not in form; the hens specially are now almost always free from red on the wing, and the cocks have pure silver hackles and backs. Cuckoos show a deplorable falling-off, why we do not presume to say. Whites keep up well, the first cock and first hen being as fine as any we have ever seen.

Cochins were on the whole a fine show, and had two hundred entries. The cup old Buff cock (Percival) could only have been improved by having a more self-coloured tail. The three winning Buff hens were very shapely, and good in all other points, though a trifle uneven in colour. The cup cockerel was very shapely and extremely even in colour, though rather smaller than we have sometimes seen. The winning pullet (Tomlinson) was perfect in shape and feather, but a little mossy. The gem of the Partridge classes was Mrs. Turner's cup cockerel, which was large, shapely, and rich in colour. The other winners were hardly so good as we have sometimes seen. Mr. Darby's winning White cock though good was hardly equal to the exhibitor's old form, but Mr. Percival's cup White hen could hardly have been surpassed for size and quality. We noticed that the second cockerel had a good deal of colour on his wing bar, which should have precluded him from taking such a position.

Dark Brahmans as a whole were hardly as good as we have sometimes seen them. The old cocks seemed late in getting through their moult. The cup bird was the Birmingham winning cockerel of last year grown into a larger-bodied bird than might have been expected. It is but another example of the powers of growth in their second year of pure-bred birds. In this class a somewhat glaring case was discovered; the fourth prize bird was recognised as a cockerel which had last year had badly slipped wings, and these were now somewhat suspiciously close and compact. An examination showed that they were both neatly tied up with string, the fastening round the shoulders being so tight that they must have caused the bird much pain. The Judge, acting under the instructions of the Committee, disqualified the bird, and the prizes below third were re-awarded. The hens were a wonderfully good class, and it was no slight honour to gain a prize. First (Warr), second (Holland), and third (Norris) were, taken together, undoubtedly the best, and the placing of them more a matter of individual taste than anything else. We hardly agreed with the awards in cockerels. Sir Henry Thompson's Dairy winner was again to the front; we much preferred the same exhibitor's v.h.c. bird (498). Second was as shapely as possible, but had one very loose wing. The class was not as a whole up to the standard of some former years; the pullets were sixty-seven in number, and many of them were of good quality, but we must protest against the wholesale distribution of cards. A commendation ceases to be an

honour when there are forty-three noticed birds; many of them were quite unworthy the distinction. The winner was Mr. Henshall's pullet, which we selected as best at Wolverhampton; second (Lingwood) here presses her closely, being a beautiful clear grey, well pencilled all over; third (Field) very well marked and shapely, but going brown; fourth too small to take a prize here; fifth the Dairy winner; v.h.c. (Maddison) the Dairy third, and might well have stood higher here. Light cocks were a good class and well judged, though suffering from the cold. The cup-winner (Percival) was a trifle yellow, though still the best in the class; second (Nettlefold) large and of good colour; third (Norris) very pure in colour, though his comb was not of the best. The hens were hardly as good as usual, and were more or less yellow throughout; first and second were a grand pair, but might with advantage have changed places. The cockerels were also not quite up to the average; the winner (Sir H. Thompson) had rather too much yellow on his shoulders, but was still the best; second (Wood) good in all other points but comb; fourth (Thomas) might have done better but for want of condition. Pullets were as a class better than the cockerels; cup (Nettlefold) and second (Morgan) were especially good; the other winners were well placed and worthy their positions. We hope to add a few notes on the remaining classes next week.

SPOILING THE DORKING.

I CAN fully sympathise with Mr. H. Weir in his remarks on the present type of the Dorking fowl, and he deserves the best support from fanciers in trying to return to the true old Dorking, which has not been surpassed by any other variety as a good all-round useful sort. Mr. Weir points out some very practical points concerning the white earlobe and dark birds. What say the present fanciers to this colour-reforming? Will you still adhere to "Sooty feet and yellow skins, the black toenails and Brahma wings," &c.? If so, then fanciers like a manufactured bird, as it is the case with more varieties than the Dorking. The Game cock of the present day shows the Malay flat toenail. It will take some generations to obliterate these defects.

Mr. Weir's article on the Dorking could not have appeared at a more seasonable time, when the long-looked-for "new Standard of Excellence" is about to appear. I trust that those who are selected to revise the new Standard on the Dorking will at once review Mr. Weir's notes to see if this vexed question cannot be settled. One word about the Standard. I am glad to see that the Secretary, Mr. A. Comyns, has published one or two varieties, which I presume is for public criticism; this will make the work more valuable, and I hope the fanciers will come forward before the work is published, and say or suggest what they have to make, so that the book will be a standard of excellence and a work of reference that can be relied upon.—R. HAWKINS, *Seaham*.

OUR LETTER BOX.

Renovating Pastures (Diagles).—You will probably find methods suitable for your purpose described in the series of articles that are now appearing on neglected pastures and parklands. If you require further information and will state the nature of the soil and condition of the pasture we will endeavour to aid you.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1882. November.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun. 5	29.956	55.5	52.8	S.W.	48.9	61.8	46.7	76.6	40.2	0.055
Mon. 6	30.152	46.2	43.9	W.	49.5	57.5	42.7	75.8	35.7	0.298
Tues. 7	29.861	44.6	42.9	W.	49.0	55.2	43.7	55.8	43.2	0.295
Wed. 8	29.519	42.2	39.7	W.	48.2	49.7	38.7	84.2	35.3	—
Thurs. 9	29.265	42.0	39.7	W.	45.9	51.7	39.3	72.9	34.8	—
Friday 10	29.686	38.6	37.4	S.W.	45.7	50.7	35.9	82.3	31.8	0.010
Satur. 11	29.668	39.9	38.0	W.	44.8	47.2	37.2	72.6	32.6	—
	29.730	44.1	42.1		47.6	53.4	40.6	74.3	36.2	0.638

REMARKS.

5th.—Fine and warm, with much wind; heavy shower 9 P.M.
6th.—Fine bright morning; rain after 2 P.M.
7th.—Fair and calm; starlight evening; rain at 10 P.M., and very heavy at 10.30 P.M., with high wind.
8th.—Fine, bright, and cold.
9th.—Lightning and high wind in early morning; fine day.
10th.—Very fine, with bright sunshine during morning; shower at 3 P.M.; rest of day fair; starlight evening.
11th.—Fine bright day.
Windy but finer; temperature near but slightly above the average.—G. J. SYMONS.



23rd	TH	Staines Chrysanthemum Show.
24th	F	Liverpool Chrysanthemum Show.
25th	S	
26th	SUN	25TH SUNDAY AFTER TRINITY.
27th	M	[and Son's Nursery, Feltham.
28th	TU	Sale of Conifers by Messrs. Protheroe & Morris at Messrs. Lee
29th	W	South Shields Chrysanthemum Show (two days).

SOME NOTES ABOUT GRAPES.

IT is instructive, interesting, and sometimes amusing to read the various experiences of writers who are recording their different opinions about various Grapes. I daresay there is hardly a Grape in cultivation which has not been decried by someone; and, on the other hand, many varieties that are pretty well condemned by most writers sometimes find admirers. My experience in the cultivation of the different varieties of the Vine has led me to be slow in condemning many of those which have been introduced during the last twenty years, as, though some of these kinds have not in all places proved what they were represented to be, they have under different circumstances become valuable acquisitions. Madresfield Court, for instance, in my experience was planted in a late house and the fruit failed to keep well, the berries all cracking; but in an inside border and used as an early Grape it proves itself a capital variety. For early work I would recommend everyone to have a house of this variety and a house of Duke of Buccleuch, both planted in inside borders, where the roots can be under perfect control as regards moisture. These two Grapes make splendid dishes for the table, the Duke being specially fitted for a nobleman's table, as its grand appearance is quite in keeping with the grandeur of the tables of our nobility. When cut and dished without being subjected to packing and railway travelling the Duke cannot be surpassed. Then, as has been remarked before, another matter, which if attended to in the cultivation of the Duke is of material importance to its fruitfulness, is the maintaining a succession of young rods, which is a simple matter.

Golden Champion, though not forcing so well as the Duke, is still a very fine Grape for summer work, and should also be treated to an inside border. I well remember the two bunches of this Grape shown at Manchester some years ago by Mr. Hunter; they were simply grand. Mrs. Pince, though troublesome to get to colour perfectly, can sometimes be seen almost black, and has so many other good qualities that it is well worth a place in a collection of Vines.

What shall I say of Mrs. Pearson, Golden Queen, and Duchess of Buccleuch? They are all successfully grown by some people, and have their admirers. My own experience of the two former is that they are fair ordinary Grapes, with nothing particular to recommend them, and no great faults to condemn them. Duchess of Buccleuch has long held the palm for flavour, and had it the appearance of the Duke would be unrivalled. As it is, along with the Frontignans, Grizzly and

White, it forms a trio of which we may say "that their qualities surpass their charms." They have to yield to the grander-looking varieties; but were I growing for my own table they would have a considerable space in my vineries. Nothing need be said about that splendid Grape the Muscat of Alexandria, except that the Bowood variety is really the finest. I would, however, put in a word for Canon Hall Muscat, so often discarded for its non-setting propensity. Grown in a house where a high temperature is maintained, and artificially impregnated, it can be made to produce splendid samples, and repays the extra trouble by its noble appearance.

Another example of a Grape doing well with one person and failing with another is the Alnwick Seedling, which Mr. Bell grows to perfection, while others have failed with it. Artificial setting is required by this Grape also; and if this is done, other conditions being favourable, it should not fail to bear well and reward its cultivator with handsome bunches which keep well. A peculiarity of that grand late Grape, the Gros Colman, is its not keeping well in bottles. I have not heard of anyone succeeding with it in bottles, and would be glad to learn through your columns if anyone has so succeeded. On the other hand, how well Lady Downe's keeps in bottles! Scalding is the weakness of this fine Grape, and this has led some people to discard it, sometimes through the want of their knowing how to remedy this defect. If kept perfectly cool from the time the first berry is seen to scald, which is at the stoning period, till the first sign of colouring is noticed, this scalding can be almost entirely prevented. About the end of March Lady Downe's is splendid for eating, being then sweet, juicy, and possessed of a certain crackling freshness that is exceedingly pleasant. Black Alicante cannot fail to always have admirers on account of its fine appearance; but I confess I do not much regard it, as in nine cases out of ten it is quite flavourless. One Grape there is of which I am unable to say anything good, Waltham Cross. It proved with me a worthless variety both in its appearance and quality, being extremely like the foreign Grapes we are supplied with in the markets, and having no good qualities to recommend it for the table.

Having been long accustomed to try the different varieties of Grapes on their merits, and always having endeavoured to be just in the matter, noting that sometimes others could succeed well with varieties that my experience did not warrant me in extolling, and at other times being successful in growing varieties that I have found others failing in, I much regret the spirit in which some writers have denounced certain varieties of Grapes which have in other hands proved remarkably fine. This style of writing is much to be deprecated, and it would be much more pleasant to see different opinions and suggestions in print without the personalities which are too often indulged in.

The cultivation of such a noble plant as the Vine would be made more pleasant to all if they were allowed to record their experiences and opinions without being pounced upon, and in some cases ridiculed, for what they state. There is so great a difference in the spirit of criticism, too; few of those who assume the office of critic being actuated by a genuine desire to discover truth and expose error, but rather to assert their own views to the exclusion of all others. For the credit of horticultural journalism it is to be hoped that such captious criticism will cease, and that all who write for the gardening

press will show by their writings that it is the general good and not petty personal motives that prompt them to lift the pen.—HONI SOIT QUI MAL Y PENSE.

ECONOMY IN CUT FLOWERS.

STERN necessity compels economy in cut flowers at this season of the year, when the open air supply has come to an end and we have to rely almost entirely upon plants under glass. The supply from this source ought, of course, to be fully in proportion to our requirements, but too often it is not so, and many a man is at his wit's end to find enough. Well is it, therefore, to acquire the habit of always using as few flowers as possible for any given purpose. Upon the face of it this would seem to be a very simple matter, so simple as to fall readily within the scope of everyone; but in reality it is not so. The most common fault in the arrangement of cut flowers is crowding, the result a confused unmeaning mass of colour. Ask anyone who is constantly guilty of such faulty practice to use fewer flowers, to strive for graceful lightness, and there will probably be a falling into the equally unsatisfactory extreme of ragged unfinished looseness.

Apart from the question of economy, good taste invariably suggests, or rather compels, moderation at all seasons of the year. By way of illustration let us suppose a rich, yet chaste, floral decoration is required for a dinner-table for twelve or fourteen persons. Six or eight bracts of Poinsettia with a few Fern fronds will furnish a rich central bowl or stand, while a dozen slender glass vases, each containing a couple of white Chrysanthemums, two shoots of Selaginella cœsia, one frond of Maidenhair Fern, and two or three pieces of dried Briza flowers, will make a chaste chain around it, and the table is complete so far as the flowers are concerned. Quite recently I had to arrange a more elaborate central stand. It was a transparent glass fish bowl of the largest size, and the materials required were nine fronds of Filix-mas Fern, seven fronds of Maidenhair, six trusses of scarlet Geranium, four clusters white Marguerites, three shoots with leaves only of Begonia metallica, three long shoots of Fuchsia, one spike of Erica hyemalis, two fronds of Adiantum macrophyllum, two shoots Tradescantia multicolor, and two shoots of Panicum variegatum. The Filix-mas fronds were bent down over the edge so as to just touch the tablecloth, then came the Marguerites alternating with the Geraniums, above them the Begonias and Fuchsias, with the Erica and Adiantum macrophyllum at top. The effect was so satisfactory, and the flowers so few and common, that a note was made of it, as I submit should always be done for one's guidance in subsequent work, especially as regards the quantity of flowers used for each kind of vase or stand.

What a boon are Chrysanthemums to the floral decorator at this season of the year! The white kinds are most in request for cutting, such as Mrs. G. Rundle, George Glenny, Elaine, and Fair Maid of Guernsey. La Nympe, of a delicate flesh colour, also proves very useful for table work, and a selection of the best kinds are useful to cut for mixed stands for all sorts of purposes. The flowers keep fresh so long after they are cut that a few plants suffice for ordinary wants. An ample supply of Paris Daisies may also be had from a very few plants. Insert a few cuttings now; turn out the plants into an open border in spring, and next autumn you will have them each as large as a Gooseberry bush, so that you will not require many plants to be taken up and potted for winter flowers.—EDWARD LUCKHURST.

SIMPLICITY in the arrangement of cut flowers is very important. Ill-managed arrangements as to colour and crowding too many together are common evils. The flowers are grown at great cost of thought and labour, and the final result is rendered sometimes unsatisfactory through want of thought at the last stage. It is quite time we were learning better.

What I am about to recommend can be fairly brought before the notice of your readers, because it saves flowers, an item of importance to many, and because in the majority of cases it will please better than when a great variety of flowers is employed. In all cases I recommend that flowers be arranged loosely, small branches of Ivy being very suitable to place in large vases at this season for keeping the flowers thinly secured. In small glasses this is not required. As a rule, I like to employ the foliage with the flower, and if it can be so managed most of the flower stands should be filled with only one kind of flower. Just now a large vase may be made with five to seven Richardias with their own foliage. Of white Chrysanthemums with the leaves, Peter the Great are the most suitable. Pink and white Primulas are always best by themselves. Cypripedium insigne is another flower which should always be alone. Maidenhair Ferns should be employed

with this flower, as also for other Orchids. Pelargoniums and Camellias we like to employ singly in small glasses with one or two of their own leaves. Schizostylis coccinea makes a glowing mass by itself. Of late years I have always employed Lily of the Valley in glasses amongst its own leaves. Deep pink and crimson Tulips are very fine without mixture of other flowers, the common Duc Van Thol being especially pretty for use about Christmas time. Orchids are generally best arranged as single spikes. Phalænopsis Schilleriana, Odontoglossum Alexandræ, O. cirrhosum, O. grande, Cymbidium eburneum, Vandas, and others are much more effective when arranged singly in spikes than when with other flowers.

Of late years the fashion of furnishing dining tables with only one kind of flower at a time has come into favour. It might be thought that this would cause sameness, but it is just the opposite, for in mixing flowers it is certain that at a time of much demand the same kind of flowers must occasionally be used repeatedly, whereas in the single-flower plan we can have Roses one night, with changes of Pelargoniums, which may again be employed as changes with white, pink, and crimson flowers, Chrysanthemums, various Orchids, Primulas, Eucharis, Carnations, Bouvardias, and other suitable flowers. There is thus continual freshness, and no other mode of dressing tables, especially in the winter season, is at once so chaste and so effective.—B.

BUCKLAND SWEETWATER GRAPE.

IF the correspondents "H. A. M." and "G. R. A." will refer to my first note on this Grape they will find that my objection to it as an exhibition Grape is founded on the ground of its inferior quality when the colour is considered most perfect, as it is one of the very few kinds of Grapes that is best in flavour before it is well coloured—whilst it is green, in fact: hence I wrote, "When it is most perfect in flavour the fruit is then only just beginning to colour, and that on this ground alone (want of colour) would at an exhibition be discarded by all good judges."

If the exception ever becomes the rule in regard to judging Grapes by flavour rather than by bloom and colour, Buckland Sweetwater will find a place very nearly, if not quite, at the bottom of the list.—W. L. H.

THE CUCUMBER DISEASE.

I HAVE read with much interest Mr. Taylor's article on the Cucumber disease, as I have had some unpleasant experience in the matter; but whether Mr. Taylor's plants were infested with the same disease as mine it is impossible to say. In the autumn of 1881 my employer expressed a desire to have Cucumbers earlier than he had been in the habit of having them, and asked when I could furnish a regular supply. I replied, "At Christmas if I then had plants to start with." He acquiesced in my plans to procure plants at once. The house, a small lean-to with benches on each side, heated with four rows of 4-inch pipes, was prepared at once. Six plants were procured from a local market grower. In their transit one of them was broken close to the soil; the remaining five were placed out. The tip of the broken one was struck, and as soon as rooted was planted in the house. We cut fruit on the 31st of December from the purchased plants, which continued to bear well till some time in March. I then observed a falling-off in health, the fruit not swelling to my satisfaction. I applied stimulants in various forms, also a top-dressing of sheep manure and half-decomposed turf; but not observing any improvement for the better, we one day scraped away the surfacing to see if new roots were forming, when to my dismay I observed some pea-like excrescence on the roots, exactly as represented in the Journal in the autumn of 1881. I showed some of the roots to my employer, and he agreed with me that it was advisable to stamp it out at once. The plant struck from the cutting showing no want of vigour, we examined its roots and saw no symptoms of the disease on that; I therefore determined to leave that and destroy the rest. I removed the five purchased plants with the soil, burnt the plant left, and had the soil cleared away as closely as possible. A temporary wall was built across the bed, on each side of it some fresh soil was applied, the plant being allowed unlimited run. Where the diseased plants were removed from the benches were syringed with a solution of carbolic acid, fresh soil applied, and as soon as young plants could be raised these were placed out. They soon commenced bearing, but the variety not proving so good as the original one they were taken out, as the back bench had been filled with plants raised from cuttings of the infected plants, and with the original plant struck from a cutting were giving an ample supply. The space occupied by them was in July planted with Melons, from which I have had

a few good fruits, and not the least sign of the disease on either Cucumber or Melon.

My opinion is that the disease was introduced with the soil of the purchased plants, as I find since that the grower in question has lost considerably by it. A friend of mine told me he had some plants which suffered in a similar manner, and these were procured from the same source. The plants struck from cuttings, including the first, are now in perfect health, and I intend keeping them through the winter.

I may say I have had an abundant supply of fruit up to the present, and expect to have a continuous one, and all my plants are from the original purchased ones, therefore it is evident the disease was introduced with the soil. Whether Mr. Taylor's experience of the disease leads to the same conclusion he will be able to judge.—JOHN GADD.

THE WASHINGTON APPLE.

THIS is not an Apple for everybody, but is submitted to the notice of connoisseurs who derive pleasure from growing fruit in orchard houses. True, it is not customary to include Apples in those structures which are usually devoted to Peaches, Nectarines, Pears, Plums, and Cherries; but is not the exclusion of Apples a mistake?

The late Mr. Abram Bass of Burton-on-Trent used to say that no one could know the true character and full excellence of the Apple from outdoor fruit in this country, and the beautiful appearance and splendid quality of Cox's Orange Pippin, Ribston Pippin, and other choice varieties as grown in his orchard house imparted much weight to his opinion. The fruit of Washington, a section of which we figure, was grown in the manner indicated, and we have no hesitation in saying no one could produce similar examples without being proud of them. The noble appearance of the fruit that was supplied by Mr. Bunyard of Maidstone—its large size, faultless shape, glossy and bright colour, and especially the melting texture of the flesh, the abundant juice and deliciously perfumed flavour—was something to be remembered. A dish of Apples of this kind would be more prized at a royal banquet than the best of Peaches or Pears, as these can be had every year from Covent Garden, but Apples cannot; yet they might be grown in private gardens, and could not be had without being prized. Two years ago we had specimens of Washington from Mr. Rivers of Sawbridge-worth, which were set in an orchard house, and ripened in a pot in the open air, the flavour of which was excellent, though the flesh was not so tender as in those ripened in an orchard house. These were more truly typical of the variety than Mr. Bunyard's specimens, and the following description is from one of Mr. Rivers' fruits:—Fruit 3 inches wide, and the same in height, conical, even, regular, and handsome. Skin rich yellow, very much covered with broken stripes and mottled with crimson. Eye small and closed, set in a plaited and rather deep basin. Tube short, funnel-shaped. Stamens basal. Stalk nearly an inch long, slender, deeply inserted in a funnel-shaped cavity, which is lined with russet. Flesh yellowish, tender, very juicy, sweet, and finely flavoured. Cells open; cell walls elliptic.

THE ROCKERY IN AUTUMN.

THE flowering season of rockery plants is from the beginning of May to the end of June, though flowers ought to be plentiful quite to the end of the flower season, and many plants are well suited for rockwork, which the autumn frosts find quite at their best. Such are several of the St. John's Worts, especially that neatest of late-flowering rock plants *Hypericum reptans*. This plant has much the appearance of our native *H. humifusum*, but has a more compact habit, and is up to the present time covered with bright yellow flowers as large as half-crowns. Another invaluable plant for autumn is *Fragaria indica*, the Indian Strawberry. I plant this by the side of rough stone steps, and it trails down them 6 feet or more, sending side shoots across the inner angles of the steps, the growth being most elegant, and the whole plant covered with bright scarlet Strawberries as large as those of the *Arbutus*, and they might dispute with that shrub the right to the name *Unedo* (*un[um] edo*, I eat one), said to have been given by the Romans to the *Arbutus* because its berries are so insipid that no one who tried one wished for another. The berries

of the Indian Strawberry are luckily equally tasteless, so that even the birds do not touch them until hard pressed for food. Whether it will stand 30° of frost I do not know, but suckers are most easily saved and grow rapidly.

Polygonum Brunonii is also very bright, and flowers most freely in rather dry spots. There is no doubt of its complete hardiness, but its relation, *P. vacinifolium*, perhaps the prettiest of the genus, is liable to be lost in very hard winters. These are now at their best, but many other plants are this season either anticipating their spring flowering or continuing their summer flowering beyond the usual time. Amongst them are conspicuous the double white *Lychnis vespertina*, *Lithospermum prostratum*, and *Erigeron mueronatum*, all of which are covered with flowers.

But the foliage of a well-furnished rockery in autumn is even more beautiful than the flowers. I refer particularly to the bright green velvety tufts of large masses of mossy Saxifrages of different kinds, allied to, or varieties of, *S. cespitosa* and *S. hypnoides*, many of which appear more distinct in their present condition than when in flower, and now is the time to visit the nurseries where good rockeries are to be seen and make a selection from the growing plants, instead of resorting to the bewildering process

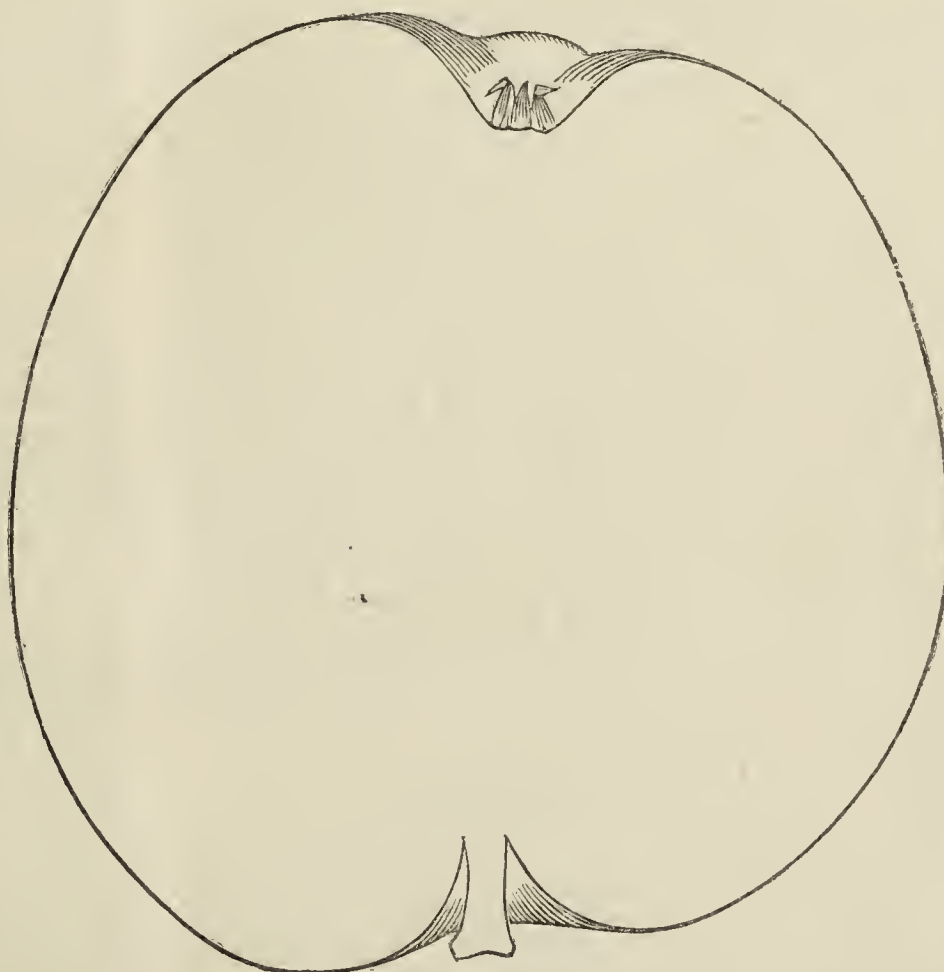


Fig. 78.—The Washington Apple.

of trying to make a selection from a hundred names of Saxifrages enumerated in the catalogues. In some catalogues the Saxifrages are wisely divided into sections according to their habit of growth. Of these the London Pride section should not be despised because that plant is so common. One of the varieties of it, which I grow as *S. Colvilli*, gets as much admiration as any plant I have, being especially attractive in winter.

The glaucous green and neat vigorous look of *Euphorbia myrsinites*, the best of the *Euphorbias*, is now very distinct, and the masses of *Sibthorpia europæa* covering the moist stones with tangled shoots resembling miniature light green Ivy are a pleasing contrast to the cushions of Saxifrage.

A few remarks must be added on the work required on the rockery in autumn. Already dwarf alpine of doubtful hardiness have been lifted and potted to pass the winter in a cold frame to guard them, not against the frost, which in many cases is their best friend, but from the alternations of warm rain and melting snow incidental to an English winter. The evergreen alpine suffer most, such as the *Androsaces*, *Lychnis Lagascae*, and most of all *Onosma tauricum*. Some recommend fixing a piece of glass over them in winter so as to exclude the rain but not the air. This, however, is very troublesome, and I find that where it is not convenient to lift plants and put them in a frame it is best to plant them as much as possible under the shelter of overhang-

ing stones, and to pack them round with pieces of old mortar or broken stone so as to prevent the leaves touching the soil. We know that many of them ought to winter beneath a covering of snow; the best substitute for it is fine clean gravel composed of pebbles the size of wheat, or of stone broken to the same size. If the soil round the stem of a plant is covered with this it prevents the growth of lichen, keeps the ground from caking, and seems to promote the well-being of nearly any alpine.

For other plants, especially the deciduous Primroses, Anemones, Hepaticas, Phloxes, a dressing of sifted peat or fine leaf soil in autumn is a great benefit where slugs abound. A little soot and coal ashes should be placed round the crown of delicate plants before the soil is applied. It is surprising what vigour many alpine plants derive from a dressing of this kind, and even a little very well-decayed stable manure may be mixed with benefit to the plants; but the soil should not be thrown indiscriminately over the rockery, each plant being treated according to its habit. Such delicate plants as *Dianthus glacialis* or *alpinus* would suffer by being buried in soil.—C. WOLLEY DOD.

ALNWICK SEEDLING GRAPE.

THIS variety has been fruited here for two seasons. Each year we have had an abundant "set," having on the lowest computation to thin out more than two-thirds of the berries during that process. The Alnwick Seedling is planted in two vineries, one of which (with this exception) is devoted to Muscat of Alexandria, the other being for late black Grapes only. Last season I had no difficulty in getting it to set in the Muscat house without artificial fertilisation, merely examining the bunches once every day while they were in bloom and slightly agitating them. The night temperature of this house at that time was kept from 65° to 70°. In the late vinery the Alnwick was in bloom that year at the same time as the Lady Downe's Seedling. We therefore used some spare bunches of the latter kind to fertilise the former, the temperature by night not being so high—often-times below 60° in the morning and hardly ever over 65° when darkness set in. Under this treatment I likewise had a most abundant set. Two of the bunches from one Vine were exhibited at the November meeting of the Fruit Committee that autumn (*vide* report of the same in the Journal of that week). This season I used the pollen from the Muscat bunches for the Vine amongst them, again having a perfect set. In the late house the Alicante was in bloom at the same time as the Alnwick, and was therefore resorted to for the same purpose with most satisfactory results. One bunch of the Alnwick, happening to be in a backward condition, was by chance overlooked, the result being a large per-centage of small berries—so much so, in fact, that the bunch was worthless.

After two seasons' success with this Vine I have arrived at the conclusion that no danger need be apprehended if artificial fertilisation is resorted to in securing an abundant set.

Whether Alnwick Seedling will eventually supersede the Alicante still remains to be proved. It has two decided advantages, in my opinion, over that variety—viz., first, in bringing its fruit to maturity at least three weeks sooner when growing in the same house; and again in the nature of its foliage, which, being more smooth and glossy, will more readily throw off any superfluous moisture that may accumulate on the same in the early morn and often remain there longer than is desirable. With me the Alicante is troublesome in this respect, the downy foliage holding so much moisture on dull days that the leaves frequently get "damp" spots on them. This would not happen, perhaps, could we keep our late vinery as we would wish. Having to use every available space at that season, and a deficiency of heating power, often causes a moisture to condense on the foliage of the Vines that could be obviated were the means at my command. The Alicante, on the other hand, is always a sure setter without any extra attention, and with us does not shrivel after hanging when ripe on the Vine, whereas we find the Alnwick does this. If I were going to plant another vinery I should grow the Alnwick with the Black Hamburgh, believing from observation that it would make a good succession to that old and excellent variety, requiring about the same time to bring its fruit to maturity, but hanging somewhat later.—JAMES HUDSON, *Gunnersbury House Gardens*.

I AM glad to see that the remarks of Mr. Wright relative to the merits of this Grape have brought out the experience of many who have grown it since it was first distributed. The unfavourable reports that were made against Alnwick Seedling up to this year undoubtedly either prevented its cultivation on anything approaching a large scale. I know more than one who shortened the cane they purchased the first season, and raised a number of young Vines

from the eyes and planted them, but owing to the reports in question these young Vines were removed, and those that they were intended to supplant retained. This I did amongst others, and kept only the original Vine, which is growing amongst Alicantes and Lady Downe's, and this spring showed quantities of moderate-sized bunches—in fact, I had not a Vine of any other variety that produced bunches in such profusion, each shoot showing three or four. I cut all off but four before they came into bloom, the same as I generally do with all free-setting kinds, and leave those only required for the crop. This I did for the purpose of testing its setting properties and with the intention of removing it if it set badly. It was the first Vine to come into growth and flower, and consequently no pollen could be used from any of the other Vines, and the result was the four bunches set as well as any Foster's Seedling I ever saw, or any of the Alicantes in the same house. After they were set the berries swelled slowly at first, and I had grave doubts about their going on satisfactorily. Every berry, however, ultimately swelled, and they were well coloured several weeks before the other Grapes in the house. The berries did not swell quite so large on my Vine as on the Alicantes, but they carried a better and heavier bloom, and the flavour is slightly superior. I have formed a very good opinion of this Grape this season, and quite agree with Mr. Wright's definition of it being an improved Alicante. I am sorry now that I pulled out the young canes I had planted, but intend to make another start towards extending its cultivation. The Vines to which I have alluded were started moderately early in the season and assisted with fire heat, the temperature ranging while in bloom from 60° to 70° at night, according to the weather.—WM. BARDNEY.

OF HUMUS.

SHARON TURNER tells us in his delightful "Sacred History of the World" that "the vegetable classes have been created upon a system of progressive improvability, and also of an indefinite productiveness, which can be increased to the utmost extent of any probable human demands upon it." So gratifying a truth as this must be very dear to all who are engaged in agriculture and gardening; and it is, as he observes, most consolatory to reflect that these beneficial results will always follow the application of human skill and diligence to this interesting order of beings. I make no apology, therefore, for asking you to open your pages to some discussion on the value of humus as a manurial agent. Liebig, in one of the last, if not the last, of his works, writes: "It is to the united efforts of the chemists of all countries that we may confidently look for a solution of these great questions, and by the aid of *enlightened agriculturists* we shall arrive at a rational system of horticulture and agriculture, applicable to every country and to all kinds of soil, and which will be based upon the immutable foundation of *observed facts* and *philosophical induction*." Now, without arrogating to ourselves to be either chemists or enlightened agriculturists, we may perhaps, without vain glory, think that we may have the common sense to judge between the opposite teachings of chemists at different times; and you certainly have, sir, amongst your contributors experienced and careful observers such as are not often met with. We have, however to be careful that we do not theorise before we know, nor allow ourselves to be the slaves of prepossessions before we have collected and compared a sufficient range of facts and just inferences from them. Closer attention multiplying our knowledge and making our reasoning correct, our later opinions will become nearer the actual truth. "Succeeding criticism always disperses chimerical fancies, and we may leave the fallacies to their natural mortality."

We all know that a few years since humus was looked upon as a substance capable of contributing directly to the nourishment of plants, and, in fact, the proportion of it existing in a soil was regarded as the truest indication of its fertility. Then, when Liebig had demonstrated the utter impossibility of humus supplying the amount of carbon assimilated over a given area, and had shown that since humus itself was the product of previous vegetable growth it could not be an original source of carbon, the pendulum of men's thoughts took another swing, and the theory was taught by Petzholt and others that the beneficial action of humus depended solely upon the salts and earths contained in it. All the other useful functions of humus were to a great extent lost sight of, and, as it is stated, even Liebig "maintained that so far as humus was beneficial to vegetation at all, it was only by its oxydation and a consequent supply of carbonic acid within the soil—a source which he considered only of importance in the early stages of the life of a plant, before it had developed and exposed a sufficient amount of green surface to the atmosphere to

render it independent of soil supplies of carbonic acid."—(*Gilbert, British Association Address.*) This sentence does not, I think, do complete justice to Liebig's views, as I shall hereafter attempt to show. Neither do I think the following passage from S. W. Johnson, the distinguished professor of agricultural chemistry of Yale College, is quite a fair criticism of his opinion. "Does humus contribute directly to the nourishment of plants? Liebig argues against the view, but his reasons for doing so are scarcely satisfactory. He opposes it on the grounds that it and its compounds are insoluble. In the same book, however, he teaches the doctrine that all the food of agricultural plants exists in the soil in an insoluble form. This old objection, still maintained, tallies poorly with his new doctrine. The old objection, furthermore, is baseless, for the humates are as soluble as phosphates, which are gathered by every plant and from all soils."

While, however, I am of opinion that Liebig did not confine the useful functions of humus to its production of carbonic acid and to the assistance which this renders in the early stages of plant life (as Gilbert says), and that his writings give no true grounds for attributing to him the contradictory teachings which Johnson charges him with, I think it must be admitted that the subject is one which still merits investigation, and that agricultural chemists are scarcely justified in refusing to allow a place to humus (unless it contains nitrogen or ready-formed ammonia) amongst those fertilising elements which command a value in a manure.—INQUIRER.

(To be continued.)

WINTERING STRAWBERRIES IN POTS.

I CAN fully endorse all that Mr. Ward says on wintering Strawberries. Four years ago I was foreman at Bloxholm Hall, Sleaford. We placed our Strawberries (not plunged) on ashes in a cold frame without any covering whatever during that severe winter except snow on the glass, which was never removed. When a thaw set in for a few days the snow water went through the sides of the frame, and the Strawberries stood in the water. This froze subsequently, and the Strawberries seemed like a solid block of ice for weeks. I have never seen a better crop of Strawberries, and of large size, than we had that spring. We gathered one morning 8 lbs. of President, each one turning the scale at 2 ozs.—A. YOUNG.

PLANTING ROSES—SPRING v. AUTUMN.

I AM much indebted to "E. M." for his full and prompt reply to my request. I perceive from his table—or rather that of Mr. Symons—that in 1877 the ground was warmer in November than in February or March; but then his record refers, perhaps, to years very different from those of the five years since. And there is this also to be said, that from November the ground gradually becomes colder, while in March it gradually becomes warmer, so that, as I suppose (although I write under correction) the sap is nearly quiescent then, while as spring advances all is in motion. After a severe winter we have to cut our Roses below where we find the pith affected by the frost, as shown by its brown appearance, but I do not think even then we can ascertain the extent of the mischief. I planted two beds in the autumn of 1879—well we know what a winter that was—I cut hard in the spring, and the Roses did fairly well. Then came the severe winter of 1880–81. Again they had to be cut down, as I thought, below any affected part, but this year the plants, although we had such a mild winter, succumbed; they did not die, but only gave short and weak shoots, and I have been obliged to root them out altogether.

Then, we must remember it is not October planting of which I wrote. "Plant early," say some; but, as a poor trombone player said to his conductor when he told him to blow harder, "It's all very well to say 'Blow harder,' but where's the wind to come from?" So I say, It is very easy to say "Plant early," but where can you get your plants withal to do it? It is well known that many of our large Rose-growers send out fifty thousand to a hundred thousand and more plants each autumn. Now it is impossible for them to exercise that personal supervision which can alone prevent mistakes to execute them in time for this. Happy are they who get their plants in November. I am now writing nearly in the middle of the month and have not had mine yet. Will anyone tell me that plants which have been taken up, perhaps laid out for some hours before being packed, been two or three days in transit, and then planted, no matter how carefully, in a cold and soddened soil, are going in a most obliging manner to arouse themselves and set to work in the midst, perhaps, of a fall of snow to establish themselves? About a fortnight ago I received a small batch of some of the very finest dwarfs I have

ever seen from Mr. Prince of Oxford, and as the wet weather effectually hindered my planting them I laid them in in a sheltered position. I have now examined them, and I do not find one single proof of any root-action. There are none of those little white rootlets that indicate that a movement is going on, and if not there, what would they have done if planted in the beds?

I perceive that in a contemporary the same idea has been started with regard to trees much more hardy than the Rose, and the assertion boldly made that much of the planting done now in autumn would be better done in the spring. This rather strengthens my position, but as you have promised to insert some more communications on the subject, doubtless we shall hear the *pros* and *cons* fully and fairly set forth.—D., Deal.

I HAVE read "D., Deal's," remarks on autumn *versus* spring planting of Roses, also the articles referred to by him, and gladly give my experience in the matter. On high dry situations like my own I have found, after repeated experiments, that autumn is preferable to spring planting, and plants got in by the end of the year do much better the following summer than when the planting is delayed until the following February. In low wet situations with a strong clayey soil the results might be different; but if I were so situated, and the plants were simply to be removed from one part of the garden to another, or obtained from some nursery close at hand, where the plants could be placed in the same day as lifted, then if the soil was in good condition I would plant as early in October as possible, and if the weather was dry at the time would sprinkle the plants overhead with water daily: this, with the night dews prevalent at this time of the year, would prevent the plants shrivelling.

That Roses planted early in the autumn do make fresh roots at the time is beyond a doubt, as I have proved this repeatedly; but possibly the small thread-like roots thrown out then perish in the winter, as I have not found the early-planted trees succeed better than those got in any time up to the end of December, and think this early planting should only be resorted to in cases where there is a risk of the ground being too wet for doing the work in November and December, which in my experience are the best months for planting. The advantages of autumn planting over that of spring is that the plants are placed in when at rest, and are fairly established in their new quarters before growth commences the following season. I have frequently found on lifting trees laid in the previous autumn that new roots begin to start by the middle of February; and, as these are very small and delicate, are easily broken off when the work of planting is delayed too long, which must have a weakening effect on the plants, the growth of which in the following summer is not equal to the earlier-planted trees.

The above remarks apply more to the Hybrid Perpetuals and strong-growing Teas. With the dwarf free-blooming section of the latter the case is different; and I have found it best with these to procure in autumn good strong ground-worked plants on seedling Briars or cuttings (these are much better than grafted plants in pots), and lay these securely in, in some cool place where they are not exposed to the sun during the winter, and where a mat can be thrown over them during very severe frost; the object in view being to keep them as dormant as possible until spring, when they should be planted out about the end of February or beginning of March, as the weather permits. Why these Teas succeed better planted in spring is probably owing to the check they receive by late planting, and the harm done in this way is less than when checked by late frosts and cold winds so prevalent in early spring, as Roses of this class are much earlier in starting into growth than the Hybrid Perpetuals. I have, like "D.," found the dwarf-growing Teas do much better with very close pruning; and on established plants, as soon as growth commences in the spring, I prune close back to an inch or two of the ground. This causes the strong eyes at the base to start, which otherwise would remain dormant if the growth was left long as advised by some; and although growing my Teas in the cold north, by adopting the above plan I get growth quite equal to what I have seen in some of the leading Rose grounds in the south. In fact this hard pruning seems to me to be essential for keeping in good health Roses of all classes of a dwarf free-blooming habit. This severe pruning, however, would not answer in the case of the strong-growing Teas and Noisettes of a climbing habit, as they require exactly opposite treatment in pruning. I think the time has arrived when our Rose nurserymen in their catalogues should make one class of the Teas and Noisettes, and separate the dwarf-growing kinds from the climbers. The latter are now numerous enough to make a class of their own. This would simplify matters to those not well acquainted with the habits of individual varieties, and be a guide in pruning and selecting for bedding pur-

poses. The Teas are not half so tender and delicate as some people imagine; and if proof of this were needed it would only be necessary to visit Messrs. Macks' nursery at Scorton, where, on some of the strongest and coldest clay land and in one of the coldest counties in England, year after year are to be found as fine quarters of the best varieties of Teas budded on Briar cuttings, which for vigour often match their more robust neighbours the Hybrid Perpetuals in the adjoining quarters. The only difference made in the culture is that the earth is lightly drawn up against the Teas before severe weather sets in, and levelled down in spring when all danger of severe frost is past. This appears to be all that is necessary to save them in the most severe winters.

These Tea Roses ought to be more extensively used for bedding purposes in ornamental grounds, and would break the monotony of the usual summer bedding plants, as they bloom the whole summer and autumn, and the young foliage in spring is quite as charming and varied as the flowers later on. To give the beds a better appearance in winter when the Roses are at rest cuttings of evergreens could be stuck in the soil, which, in addition to protecting the plants in severe weather, would have an ornamental appearance.

Before bringing my somewhat lengthy remarks to a close I should like to say a few words on own-root *versus* worked plants, as there has been a tendency on the part of some writers recently to disparage the latter in favour of own-root plants. Nine or ten years ago I planted a quarter of about five hundred plants. These consisted of plants on Manetti, seedling, and Briar cutting, and a portion on their own roots. These Roses were all planted under the same conditions and have received the same treatment ever since, and on preparing a few days ago to shorten back the long shoots I was struck with the greater vigour of the budded plants over those on their own roots. Comparing plants of the same variety together, although many of the Manetti plants are over fifteen or sixteen years old, they still remain in perfect health, and give as good exhibition blooms as maidens and one-year cutbacks. The shoots made during the present season on the stronger-growing varieties on these old plants were fully 8 feet high. To say that better results can be obtained by growing Roses on their own roots in preference to budded plants is a delusion, and I feel certain, if Mr. Hinton took a poll on the question from all the principal growers, that nine-tenths of the votes would be in favour of budded plants. The union of stock and scion, both in the case of Manetti and Briar, seems so perfect that it leaves nothing to be desired, and dwarf Roses on these stocks, properly planted and pruned, will, I feel certain, last for any number of years, and grow wherever it is possible to grow Roses at all.—J. BURRELL, *Heighington*.

[Owing to the pressure on our space this week several letters must be reserved till next issue.]

SCRAPS ABOUT FRUIT.

APPLES FOR THE NORTH.—I have had Potts' Seedling Apple for about ten years, and think highly of it; but it is not quite so certain for a full crop as those I have already named. This variety, with Ecklinville Seedling, Warner's King, and New Hawthornden, here have been much alike this season. They have carried a half crop of first-class fruit. To the shelter afforded during the blooming period there is often credited the reason of a full crop. Had my place been naturally sheltered, the same shelter that would undoubtedly have been advantageous during spring would have added to the heat of the position in summer; consequently the fruit buds would have been better matured and next season's crop more certain. Position may make a few degrees' difference in the summer heat in the same locality, and this may make all the difference between fruit buds being quite ripe and almost ripe. For instance, between Berwick and Edinburgh the harvest is at least ten days earlier than it is in the county of Durham. In planting it is for gardeners to consider this average difference in the temperature, and to plant accordingly. My contention is that with wood well ripened the disaster from spring frosts is considerably mitigated; and this being so, it is for planters to discover the varieties of fruit trees that can be ripened with the least heat, that securing a crop may be then more probable. Of course I am not discarding the truth that some people thrive where others starve. I bargain for equal attention. Unripe wood, the parent of nearly all the evils that attend fruit-growing, can be contributed to in many ways.—JOSEPH WITHERSPOON.

THE KITTATINY BLACKBERRY.—Could any of your correspondents give me any information respecting the American Blackberry Kittatinny? We have it here, but it never fruits. I

have protected it during winter with fern to try and save the canes. Last winter they came safely through, but still there has been no fruit. They are growing on strong soil, and are well exposed to the sun. Of the Parsley-leaved variety some plants bear well, others do not. I think I will have a bed of them in the garden and give them closer attention.—M. E. C. B.

LANE'S PRINCE ALBERT APPLE.—This Apple has been recommended to me as a sure bearer and one of the most useful culinary Apples; but before planting it I should be glad to hear if any of the readers of the Journal have had experience with it, and if so with what results? If it has failed it would be interesting to know under what conditions it was grown as to soil and climate, and information of the same nature would be valuable where it has succeeded. Any particulars relative to this Apple—its bearing and keeping properties, would probably be useful to others besides—A SURREY AMATEUR.

THE PRUNE AND CLUSTER DAMSONS.—Will Mr. Luckhurst, or any of your fruit-growing contributors, be good enough to say which of these Damsons they consider the most likely to give the best returns in growing the fruit for market? "The Prunes," says one of my neighbours, "being the finest are sure to make the most money;" whereas another says "the Cluster kind is not only by far the most productive, but its smaller fruits meet with favour and can be invariably sold at remunerative prices." I am thus in a dilemma, and if any of your experienced readers can extricate me I shall be thankful, as I should like to plant a hundred trees.—N. FIELDING, *Hants*.

MORELLO CHERRIES.—Will these do as standard or bush trees in the open garden, or must they have walls? I have seen them recommended as bushes, but am not certain that the advice was not founded on experience gained in a warm position in the south. The question I should be glad to have answered is this, Would they be likely to fruit well and ripen their crops in a garden, moderately sheltered, in Norfolk; soil medium loam, and situation 100 feet above the level of the sea, or thereabouts? O. E. HERBERT.

HARDY FRUITS.—In reply to Mr. MacIndoe, allow me to say that I know nothing of this Apple he mentions, and that I had the Ringer first from the late Mr. Harrison of Darlington. Many of your readers as well as myself, I feel sure, would be glad if Mr. MacIndoe would give us some of his experience of hardy fruit-growing as he finds it in the north-east of Yorkshire. The many bare trees we see year after year is sufficiently convincing that we know far from sufficient yet of the many traits of character of our hardy fruit crops. With well-selected varieties, especially with early varieties, I feel quite sure that much money could be taken before the American Apples reach us. After such selection secure shelter from the west to avoid gales, plant high and dry away from destructive spring frosts, and then await with sure confidence each season and its golden returns. Last year I advised to plant largely of Scarlet Siberian Crab for jam; perhaps I may be pardoned for considering it some evidence of such advice being followed that I have not been able since to secure a tree at wholesale prices.—JOSEPH WITHERSPOON.

BEGONIAS AT SWANLEY.

MESSRS. H. CANNELL & SONS have in recent years paid much attention to Begonias generally, and a fine stock of all the types is now grown in their nursery. In a visit some time since I noted some of the best, which may be of interest to those who admire Begonias.

Foremost amongst them were the Tuberous varieties, which had been very handsome earlier in the season, but were then getting past their best. Some, however, still remained in fine condition, and notable amongst these were "The Seven Cities," which are newly raised varieties bearing exceedingly large flowers, and named after the chief cities of the world. The blooms of some of these were 6½ inches in diameter, the petals proportionately broad, and the colours bright, chiefly shades of scarlet. City of London is crimson scarlet, City of Berlin very dark scarlet, City of Peking orange scarlet; New York, Paris, Vienna, and St. Petersburg representing other shades. These have the most massive flowers of any we have seen, and they appear, moreover, to be of sturdy habit and free bloomers.

Another group of flowering Begonias—including such forms as B. weltoniensis, B. diversifolia, B. Martiana, B. Martiana gracilis, B. Ingrami, B. Knowsleyana, B. Richardsiana, B. Sutherlandi, B. Dregei, and B. fuchsoides—is especially deserving of notice, as the plants are so useful for decorative purposes, so easily grown, so floriferous, and so generally attractive that they deserve to rank amongst the

most valuable to the gardener. Most of them are well known, the handsome rosy-flowered *B. Martiana*, the coral-scarlet *B. fuchsoides*, and the pink *B. weltoniensis* being especially popular; but one or two of the others are not so frequently seen in gardens. *B. Knowsleyana*, however, with *B. Dregei*, *B. Richardsiana*, and *B. Sutherlandi*, though having no pretence to novelty, are comparatively rare, but where well grown they are greatly appreciated. The first has been repeatedly noticed in these pages, and was figured in this *Journal* December 22nd, 1881, when some account was given of its origin and usefulness. *B. Dregei* and *B. Richardsiana* are of neat habit, with small bright green leaves and small but abundant white flowers. *B. Sutherlandi* is of similar habit, but has orange-coloured flowers, a very distinct shade. *B. semperflorens* and its variety *rosea* are indispensable, the latter being a fine companion for the former, which it precisely resembles in habit, but the blooms are deeply tinged with rose instead of being pure white. *B. Martiana gracilis*, it should be observed, is a variety of continental origin, rather more slender in habit than its parent, but otherwise similar to it. All these are useful for winter flowering, and add greatly to the beauty of a conservatory when flowering plants are not too plentiful.

There is yet another section of *Begonias* largely grown at Swanley—namely, the fine-foilage type, which are represented by dozens of handsome varieties, many being comparatively new from the continent, where more attention has been paid to these plants for some time than in England. The diversity in colouring and markings of the foliage almost defy description. Some have a metallie silvery gloss, others are of the deepest velvety green with various dots and splashes of different colours, and some are deep red with green zones. Without attempting to describe them, the following may be noted as some of the best—*Marguerite Bruant*, *G. O'Gorman*, *Jules Duplessis*, *Madame Champion*, *Madame de Biehat*, *Jules Bouchett*, *Fire King*, *Berthé Rautière*, *Madame Baumelin*, and *Adrien Robine*.—VISITOR.



IN reference to the intended Congress of Horticulturists to be held at Ghent in March and April, 1883, the Syndical Chamber of Belgian Horticulturists have passed the following resolution:—"In order to give to the representatives of horticultural industry of all countries the occasion to extend mutually their commercial relations and discuss their common interests, an international meeting of horticulturists will take place at Ghent in April, 1883. The programme will be published in due time. As this meeting will coincide with the great quinquennial international Flower Show organised by the Royal Agricultural and Botanical Society, interesting entertainments will be offered to the Congress members, and excursions organised to the different horticultural centres of Belgium."

— IN consequence of the Assizes not being concluded, in St. George's Hall, the LIVERPOOL HORTICULTURAL ASSOCIATION'S AUTUMN SHOW has been postponed till Friday, November 24th.

— WE are desired to state that an addition of eighteen pensioners on the funds of the GARDENERS' ROYAL BENEVOLENT INSTITUTION will take place on January 11th, making the number up to 100, the largest number at one time on the books. Mr. E. R. Cutler also informs us that "The collection in aid of the Pension Augmentation Fund for 1882 will finally close on November 30th. The amount received up to this day is £478 8s. 7d., being £83 4s. 9d. behind the amount collected last year. The Committee earnestly trust that among the many horticulturists in England that this sum will be made up before the day of closing the fund, and that in a very few years it will be their unspeakable gratification to be able to announce their ability to raise the pensions by £4 each. The voting papers for the coming election of pensioners will be in the hands of the subscribers on or about December 16th."

— A CORRESPONDENT writes as follows:—"On the 14th inst., at his residence in College Street, Bury St. Edmunds, in the seventy-second year of his age, died Mr. JAMES CLARKE. He was

one of the oldest members of the Bury and West Suffolk Horticultural Society, and was an ardent and successful amateur horticulturist until failing health compelled him to in a great measure relinquish his favourite pursuit. He was eminently successful in the cultivation of plants, but the Pink was his favourite flower, and he succeeded in raising many valuable varieties, including Lord Lyons, Derby Day, Duchess, and others. He was a genial and kind-hearted man, beloved and respected in his native town; never so happy as when in the company of horticulturists; an appreciative reader of the *Journal of Horticulture* since its commencement, and he knew, spoke of, and regarded its various writers as friends, although it is possible that he never had an opportunity of seeing or speaking to any of them."

— THE CONSERVATORY AT NORRIS GREEN is, writes a correspondent, now a brilliant mass of flowers. Apparently there are about a thousand Zonal Pelargoniums in full beauty; *Vesuvius* and its white variety, with a salmon sport that originated in Mrs. Heywood's gardens, and increased by Mr. Bardney, being amongst the most effective. Very fine also is *Prince of Wales*, a free grower, and fine winter bloomer; colour soft scarlet. John Gibbons is one of the finest of the bright scarlets, and will be more largely employed in future. Arthur and Mary Pearson are amongst the best pink varieties. Perhaps the finest double scarlet variety now flowering is *M. Raspail*. Guillon Mangilli is also flowering, but this variety evidently requires more heat for developing its full beauty in winter as seen in the stoves at Longleat and Marston. Besides Pelargoniums Mr. Bardney grows seven hundred Primulas, six thousand bulbs in pots, three hundred pots of Lily of the Valley, still more Spiræas, six hundred Roses in pots, five hundred hardy Azaleas and Rhododendrons for the embellishment of the structure during winter and spring. Nor is the colour produced by such a number of plants overpowering; as abundant foil is afforded by the splendid specimen Camellias that occupy the central beds, the flowers being chiefly arranged on a stage round the house.

— OF CHRYSANTHEMUMS FOR DECORATION grown by Mr. Bardney by far the most useful is one called *Souvenir de Malange*, a small white reflexed paper white variety, a little larger than a Pompon. It is of dwarf habit, branches freely, produces thousands of flowers, retains its dark green foliage, and is never affected with mildew. This valuable variety has quite supplanted *Cedo Nulli*, and closely resembles, if it is not identical with, *Sœur Melanie* that was recently alluded to as the most useful Chrysanthemum in the Chiswick collection. Elaine and James Salter are the most useful tall light varieties at Norris Green; and by far the most serviceable among the richer colours is *Early Red Dragon*, as the plants branch freely and produce their brilliant flowers in abundance.

— WORTHY of special note is *LUCULIA GRATISSIMA*. A plant or tree of it in the above-named conservatory is about 15 feet high, and is bearing at least a hundred trusses, some being 9 inches in diameter, and the fragrance of the delicate peach-coloured flowers pervade the entire building. This is perhaps the finest specimen of this plant in the country, and it will continue yielding trusses for several months. Unfortunately it is difficult to propagate this plant from cuttings, but the difficulty will be surmounted, as a few plants a foot high in 5-inch pots are bearing heads of flowers like Hydrangeas, and after a little more experience Mr. Bardney will be able to tell us how such plants can be produced. *Luculias* will then be grown in thousands, and will find their way into most or all greenhouses and conservatories.

— PRICE'S PATENT CANDLE COMPANY, in sending us a further sample of GISHURSTINE, remind us of the importance of keeping

the feet dry during the inclement period, and at the same time provide us with the means of doing so—so far, at least, as any application to the leather can secure that desirable object. We have now used this dubbing for two winters, and the experience thus gained confirms the accuracy of our first expressions relative to its efficacy. For the convenience of gardeners arrangements have been made with several of the leading nurserymen and seed firms to include this useful article in their lists of garden requisites.

— THREE houses, each 100 feet long, in Messrs. H. Cannell's nursery are filled with healthy plants of the SWANLEY STRAINS OF PRIMULAS—red, white, and purple—each an exhibition in itself. Swanley Red is a strikingly handsome variety of dwarf, compact, sturdy habit, very floriferous, with fine trusses of richly coloured blooms which, when seen in the long lines of plants, has almost a scarlet tint, so great is its brilliancy. As a really showy variety of unusual excellence this merits every commendation, and similar praise is deserved by Swanley White, which has large flowers of admirable form, great substance, and a pure dense white that is rendered even more conspicuous by the dark leaves and petioles—the latter a rather uncommon character in white varieties of Primulas. Swanley Purple was not fully developed at the time of our visit, but what flowers were expanded prove it to be of considerable merit, the colour being so deep and rich. These, with Lilacina, form the bulk of the stock; but other varieties are grown, some very promising and novel seedlings being observable, several with dotted flowers and one with a bronze zone.

— "W. L. H." writes as follows respecting CAPSICUM WILLIAMS' "LITTLE GEM":—"This is a valuable addition to our list of berried plants, which are so useful during the winter months for decoration in the conservatory or house, at a season when there is such a scarcity of plants in flower. The berries, which are but little larger than peas, are of a bright red colour, and are produced in great profusion over the upper surface of the branches. The plant is of dwarf compact habit, and in this respect as well as in its freer fruiting properties is much in advance of Solanum Capsicastrum."

— A SECOND EXHIBITION OF HORTICULTURAL APPLIANCES AT THE AGRICULTURAL HALL, ISLINGTON, is announced to be held from March 15th to 24th, 1883. In addition to the exhibits not in competition, prizes will be offered in fourteen classes for flowering plants, evergreens, dinner-table decorations, &c.; a first and second prize, consisting of gold and silver medals, value respectively six and three guineas, or money prizes of equal value, being offered in each. Schedules and particulars can be obtained from the Manager, Mr. J. H. Raffety, at the Agricultural Hall.

— A CORRESPONDENT writing from Biggleswade observes that they had a sudden change in the WEATHER in the early morning of the 16th inst., with a fall of 3 inches of snow, which, however, soon melted. Slender-growing shrubs have, however, suffered to some extent from the weight of snow. The river Ivel has overflowed its banks; consequently low-lying districts are again very much flooded, which has seriously impeded farming and gardening operations.

— THE following note has been forwarded to us for publication relative to the SEARCH FOR A CHRYSANTHEMUM SHOW:—"Having observed in the list of coming events in the last issue of the Journal that the Leicester Chrysanthemum Show was to be held last Friday, I entered the town with the object of visiting the Exhibition and noting the character of the blooms in the midlands. In response to an inquiry the porter said, 'There is no show in the town to-day, sir.' The company's carman was then

appealed to as a 'man who would know if anyone did,' but his verdict was, 'No show in this town.' An application to a policeman brought the same answer. A cabman was then hailed, with a request to drive to the Chrysanthemum Show. 'Don't know about a 'zanth'um show,' quoth cabby, 'but Harrison's has a tonnup show there,' pointing with his whip, 'and there's nout to pay.' So the 'tonnup' show I entered, and in addition to a really grand exhibition of roots found a small bill announcing that a Chrysanthemum and Celery Show, open to all England, was being held that day in the Hazel Street Board School, Ayleston Road. After a journey of a mile in the tram the school was found—an imposing building, but the doors were locked and 'the man gone home,' as a cluster of children informed me. They also had seen gentlemen take some boxes in, but nobody was there now. This was undoubtedly so, and I left Leicester under the impression that the shows are conducted in a very quiet manner there, and that visitors were not particularly desired, or some slight means would have been adopted to have brought the Exhibition to the notice of, say, local policemen and cabmen, who are usually supposed to be acquainted with local events. But Harrison's Royal Midland Root Show, I repeat, was splendid, and finer, firmer, cleaner examples of Turnips, Swedes, Kohl Rabi, Leicester Red Celery, Carrots, Potatoes, Onions, &c., have seldom been seen than in the tent near the market place, which was crowded with appreciative visitors."

— CH. LORENZ of Erfurt announces that he is sending out a THREE-COLOURED CELERIAC (*APIUM GRAVEOLENS TRICOLOR*), which he describes as follows:—"In general it resembles the old soup Celery, but its vigorous leaves, of a deep glossy green, are richly and most elegantly streaked with a silver grey hue in the middle of the leaflets, with a broad creamy white margin." It is recommended for decorative purposes in gardens and for garnishing.

— A CORRESPONDENT advises that "HYDRANGEA THOMAS HOGG should be grown by every gardener having a conservatory to furnish. It is easily grown into large specimens, showing flower at every shoot, no matter how weak it is. We had a specimen last season in a 14-inch pot, and which had bloomed two successive seasons in the same pots. It was 6 feet in diameter, and carried each time ninety large heads of bloom. It was kept well supplied with liquid manure after showing bloom."

— THE opening meeting of the session of the METEOROLOGICAL SOCIETY was held on Wednesday evening, the 15th inst., at the Institution of Civil Engineers, Mr. J. K. Laughton, F.R.A.S., President, in the chair. Eleven new Fellows were elected—viz., Rev. J. Brunskill, F. B. Buckland, C. F. Casella; W. H. M. Christie, F.R.S.; A. Cresswell, R. S. Culley, C. Morris, O. L. O'Connor; H. Parker, F.Z.S.; A. Rowntree, and D. R. Sharpe. The papers read were:—1, "On Certain Types of British Weather," by the Hon. Ralph Abercromby, F.M.S. The author shows that there is a tendency of the weather all over the temperate zone to occur in spells, associated with certain types of pressure-distribution. In Great Britain there are at least four persistent types—the southerly, the westerly, the northerly, and the easterly. In spite of much fluctuation one or other of these types will often continue for weeks together, and tend to recur at the same date every year. The value of the recognition of type groups is shown in the following ways:—(1) They explain many phenomena of weather and many popular prognostics. (2) In some cases they enable forecasts to be issued with greater certainty and for a longer time ahead. (3) We can by their means correct statistical results by giving the real test of identity of recurrent weather, which no single item, such as heat, cold, rain, &c., can do. (4) They enable us to treat such geological questions as the influence of changing distribution of land and sea on climate in a more satisfactory manner than

any other method. 2, "On the Use of Kites for Meteorological Observations," by Prof. E. Douglas Archibald, M.A., F.M.S. In this paper the author advocates the use of kites for meteorological observation, and describes the mode in which they may be best flown, so as not to be mere toys, but scientific instruments capable of ascending to great heights, remaining steady in currents of varying velocity, and of being manipulated with ease and rapidity by the observer. 3, "The Meteorology of Mozufferpore, Tirhoot, 1881," by Charles M. Pearson, F.M.S.

— THE inventor of GISHURST COMPOUND desires us to publish the following letter which he has received from Australia:—

"Melbourne, 19th Sept., 1882.

"When in Sydney two weeks ago I went up to Paramatta and spent a day with an old friend, Alderman Pye. He was one of the first to plant Oranges on a large scale. When I first saw his orchard twenty years ago I found his largest trees a mass of scale and smut, so suggested to him the use of Gishurst compound. That at that time was not much known in this country, as I had to send to my London agents to procure it for me. Mr. Pye acted on my suggestion, and now these trees that he planted upwards of sixty years ago are bright and clean, covered with fine fruit. Have been lately figured in the *Town and Country* newspaper, an illustrated Sydney paper. I tried to get a copy, but failed. The trees are now said to be 35 feet high, standing erect. I could not get my hands to meet round one. Mr. Pye said he had tried everything against scale, but found Gishurst best of all."

HEATING GREENHOUSES.

YOUR correspondent "A. O. W.," page 448, calls attention to the advantages of certain oil stoves, which he says "will not injure the most delicate Fern if properly managed." It is well to put in the "if," judging from the many complaints we hear of these, as, owing to there being no chimney to the burner, a very little draught makes the flame smoke, and this does undoubtedly cause injury. The trouble of filling with oil, and the difficulty of trimming wicks to burn evenly every six or eight hours, is quite as great as that of feeding a slow-combustion boiler with coke or cinders always at hand. Hot-water pipes are the safest and best, and—considering the fact that a complete apparatus can now be obtained for less than £5 which will last for twenty years, while a couple of large stoves, to give anything like the same heat, will cost quite half as much and last two or three years—it is easy to see which is the most truly economical, especially so as the cost of oil will, as a rule, be more than the fuel for a boiler. Where gas is available and at a low price, small pipes heated by a copper boiler placed outside is as economical as oil, heat for heat, and requires no attention, as it may be kept burning for weeks together if necessary in severe weather. If oil must be used it can be more advantageously burnt under a properly constructed copper boiler, with small-sized sheet-iron water pipes, the ordinary wrought-iron pipes being too thick to let the heat escape readily, unless with the more powerful flame of a gas-burner.—B. W. WARHURST.

THE NOMENCLATURE OF GARDEN PLANTS.

MR. W. TAYLOR recently had some remarks upon the above subject which should not be allowed to pass unnoticed. That an evil exists in the numerous synonyms borne by plants is manifest, but that the method of dealing with the matter he proposes would decrease the inconvenience is extremely doubtful. In the first place, it is unfair to blame the botanists for what is often due to the neglect of the nurserymen, who too seldom take proper measures to insure that their plants are accurately named, though there are some very creditable exceptions to that rule, and such purveyors enjoy a proportionate degree of confidence on the part of purchasers. It is, however, a deplorable fact, which no one regrets more than myself, that nurserymen will not take sufficient care in naming the plants, and a slight error is soon multiplied a hundred or a thousandfold. In the case mentioned, where totally different plants are obtained under the same name at different nurseries, the vendors are alone to blame, and not the botanists; and if nurserymen will not take the trouble to consult competent authorities the matter does not admit of any improvement, and the purchaser must do what should have been done by the vendor.

Certainly some plants are unnecessarily loaded with synonyms; but that, unfortunately, is not always an indication of their merit, as Mr. W. Taylor supposes, but rather points to some peculiarity of structural character that has induced different botanists to take diverse views regarding their affinity to other plants. This cannot be prevented, as, like other human beings, botanists are not

infallible, and so some have described and named plants which had been previously described under other names, and thus synonyms have accumulated. There is a simple rule, however, which is generally followed now, and that is to accept only the name first published, with a description by a competent botanist, and where this is consistently followed little difficulty will be experienced. An instance occurred recently of hasty naming and correction, which has given rise to a synonym that fortunately, however, is not likely to come into general use. A new *Selaginella* was first exhibited by Messrs. Veitch under the name of *S. platyphylla*; it was certificated under that name, and described in the reports of the horticultural periodicals. Subsequently, on the examination of an experienced pteridologist, it was named *S. grandis*, as being a more fitting title, the first signifying broad-leaved, whereas the true leaves are not remarkable for their breadth, but, being closely placed, they give the branches the appearance of fronds, and doubtless it was to this that it owed its first name.

There is one sentence in Mr. W. Taylor's notes that specially deserves attention. He says, "We do not want the collections of weeds we see in botanic gardens." Would it surprise Mr. Taylor to learn that nearly the whole of his hardy flowers, which he prizes so highly, have been either brought into cultivation through botanic gardens, or preserved in them when they would have been otherwise lost? Even now there are plants cultivated in some of the leading botanic gardens of this country that rival the best of those in general cultivation, and yet are scarcely known except to scientists, and so they will remain until they attract the attention of an enterprising nurseryman. This has been the case with hundreds of plants, and it is both unjust and incorrect to stigmatise them as "collections of weeds" when they include not only all the best that Mr. Taylor has grown or seen, but many others equally beautiful. It is the object of forming a botanic garden to obtain as large a collection of distinct species and varieties as possible, and not to grow only those which are structurally interesting—to show, in fact, a good general view of the vegetable world, including both its beauties and its curiosities; and that the leading establishments of the kind in Great Britain satisfactorily accomplish this as far as their means will permit, any competent and impartial visitor must be ready to admit.—JUSTITIA.

PRUNING GOOSEBERRY BUSHES.

THIS operation in many gardens is often carried too far, and hard cutting-in is annually practised more as a matter of form than from any good results that may follow. Some pride themselves on this, and persist in having it carried out on the lines of some hard-and-fast rule they have laid down. I could point to instances of this kind where pruning has proved repeatedly disadvantageous. Gooseberry trees in this respect are much like Apples and Pears, and the more they are cut the more useless wood they make, until the trees are so crowded that it is almost impossible for light and air to ripen the wood. I have seen Gooseberry bushes become more crowded under a severe system of annual pruning than when left untouched. I do not say fruit cannot be produced where pruning is freely practised, and I admit the fruit may be larger than that produced from unpruned trees, but the crop will not be so heavy from the former as from the latter. The question arises whether hard pruning is needed in the cultivation of Gooseberries, and more especially in moist localities where late spring frosts are general. I know some bushes that failed in the majority of seasons from no other cause than overpruning. For about half a dozen years, while under this system of cultivation, I do not think a full crop was obtained; in fact more fruit was produced the first season under moderate pruning than during the whole time under the other plan, and they have never failed to fruit abundantly during the past six years.

The only pruning I consider necessary is to thin out the branches slightly to prevent them from becoming crowded, and to remove the lower branches from those inclined to hang upon the ground. By carrying out this method failure in the crop is reduced to a minimum. Pruned bushes have but little foliage at first to protect the young fruit from late frost, while, on the other hand, a large percentage of fruit, especially on the under side of the branches, is safe from all ordinary late frosts through the abundant foliage on the unpruned or lightly pruned bushes.—LANCASTRIAN.

NOTES ON ASPARAGUS.—Now that the tops of Asparagus have decayed, cut them off and fork the soil away from the crowns into the alleys, almost bareing them. Give a good dressing of manure and a sprinkling of salt, but do not return the soil until next March, when the beds should have another sprinkling of salt, being then

earthed and trimmed. This system is practised with much success by the market gardeners around Mortlake, where Asparagus is grown by acres.—A. Y.

MENTMORE.

TRAVELLERS alighting at the Cheddington station of the London and North-Western Railway have not to proceed far, in one direction at least, before they will perceive that they are approaching a residential estate of no small importance. They will observe, too, that this estate is not characterised by extreme old age, with trees bordering on decay and a general sense of negligence pervading the demesne; on the contrary, they will recognise a property extensive and rich, trees young and vigorous, roads smooth and clean, fences firm and neat—everything, in fact, indicating careful supervision on the part of the overlooker and the possession of wealth by the proprietor—not hoarded wealth, but means sufficiently dispensed for the maintenance of everything in good condition, yet not lavished in the indulgence of unmeaning fancies, nor devoted to mere display, as if to gain the applause of passers-by. In a word, it is apparent that wealth is here used judiciously, not wasted, and the district is at once benefited and the estate improved. These are our first impressions of Mentmore, and they deepened into conviction on closer examination of the management and surroundings of that palatial home.

That benefits and improvement go hand in hand here is exemplified by the state of the parish roads which skirt and traverse Lord Rosebery's property, these to the extent of some two or three miles being kept in the best of order at only a trifling cost to the parish, amounting to little more than is necessary for retaining their public character. Thus the rates are relieved, while the estate, indeed the entire district, is rendered to the fullest extent agreeable to all. The village, too, of Mentmore though small is a model one, every dwelling resembling a detached villa of a style of architecture peculiar to itself—pleasing without being elaborately ornate, while the structures are substantial, commodious, and evidently designed with the object of rendering them convenient and comfortable for the inmates. Even the blacksmiths' and carpenters' shops, with their frontages of grass plots, shrubs, and walls covered with climbers, resemble anything but what they are, equalling in appearance many a country parsonage; and it is only by passing to the other side, which is not seen from the road, that the trade character of the buildings is recognised. Excellent schools, too, are erected for the children of the district; and here must be noticed a practice in connection with them that is not only possibly unique in its way, but testifies to the thoughtful kindness of the distinguished lady of the manor towards the little ones and their parents on this fine estate. We hear much of compulsory education now-a-days, but better than compulsion is the Mentmore system of sending round a van every morning to the scattered and widely distant cottages, collecting the "dots" and conveying them to the school door, then at night calling for them and distributing them at their respective homes. This practice is not confined to wet days and certain seasons, but is an established custom, and in wet weather and dry, winter and summer, the loads of laughing children are taken to and fro, delighted, no doubt, with their school experience, while their parents are relieved of much anxiety, and are, it is hoped, correspondingly grateful for the privilege that is so generously accorded them. These pages are perused by many of wealth and position who are kindly disposed to all around them, but it may happen they have never thought of this particular manner of doing good in isolated districts; hence its record here. In one lonely spot an instance can be named where a thoughtful employer has provided a pony and small covered conveyance for conveying his gardener's children to and from the school, which is three or four miles distant, the eldest child being the Jehu; but this is the only case known to me, though possibly there may be others, where anything approaching Lady Rosebery's system is carried out, and, as might be expected, the gardener is as industrious and worthy, and as devoted to the interests of his employer as that employer is appreciative and kind. And what is the result of this mutual confidence between a good master and a good man? It is simply this—few gardens in this country are better and more economically managed than that of Mr. Greenham, whose gardener was the raiser of Foster's Seedling Potato, which was certificated at Chiswick two years ago. This school episode, too, is worthy of record, and the subject to which it pertains cannot be uninteresting to a great number of readers of these lines. It is presumed, therefore, that this digression will be pardoned, and now we return to Mentmore.

As before indicated, it is not easy—indeed to the stranger it is impossible—to tell where the public highway ends and the private

drives to the mansion begin. Strong and neat iron fencing to the extent of about nine miles has been firmly fixed by Mr. Smith (the competent manager of the roads, woods, and gardens) by the sides of public and private roads alike, and ornamental planting has been done on an extensive scale. The principal approach is flanked by circular groups of trees and Conifers, each apparently some 50 or 60 yards in diameter and the same distance apart, and still farther from the side of the road. Thus there is no cramping, except that the groups will soon be overcrowded unless thinning is done, a circumstance to which Mr. Smith is fully alive. In each of the spaces between these groups are three specimen Wellingtonias, arranged triangularly, and with ample room for their full development. They are already effective, and show to advantage on the grass, which is kept short, but not shaven, by being cut with a reaper, not a lawn mower, a few times during the season. The ground is nearly level, being in the vale of Aylesbury, the soil mostly clay with an admixture of chalk, and the grass and trees tell us it is fertile. In such a soil, while the trees do not usually start quickly, they make good progress after once fairly established, and continue healthy and vigorous for many years. Before reaching the mansion a road, still a public highway, but very unlike one, branches to the right, and leads to the village and gardens. This road is flanked by a double row of Horse Chestnuts planted on each side, the trees being just a chain (22 yards) apart, and as much, if not more, from the road. Thus they have space for showing their true character, and will form a grand avenue some day; already it is well marked, as the trees are making sturdy and healthy growth. That rows of well-developed Chestnuts are imposing, and especially in the flowering period, abundant evidence is afforded by the fine examples in Bushy Park; and who knows but what the Mentmore trees will not at some future period become equally famous? Nearer the village a thicket of trees skirts the road, only mentioned for recording a singular fact. Amongst the trees were some old common Willows which it was necessary to lop severely—in fact, they were beheaded. They, of course, grew again; and now comes the curious part—they are all transformed into Weeping Willows, the growths having assumed the character of the true weeping variety. The change is perhaps explainable in this way—the shoots grew rapidly and attained a great length, but being under the dense shade of other trees they were necessarily weak, and hence curved downwards. At any rate, whatever the cause may have been, the branches point to the earth, arching gracefully, and the round weeping heads are attractive by the wayside.

After traversing a distance of something under two miles we arrive at the gardens, which are close to the public road, the new kitchen gardens (of which more anon) on the right, and the enclosure of glass structures and Mr. Smith's house on the left, the pleasure grounds, park, and mansion being still further leftwards, or westwards.

Mentmore, as above indicated, is a comparatively new place, the mansion having been commenced in 1851, and completed in a few years, by the late Baron Meyer de Rothschild. It is interesting to observe that the designs for this splendid building were supplied by Sir Joseph Paxton, M.P., and his son-in-law, Mr. George Henry Stokes, architect. The style adopted by desire of the Baron for the exterior has been described by the *Builder* as that which prevailed during the early part of the reign of King James I., and of which Wollaton Hall, Notts, is perhaps the finest example. A difference in the combination and arrangement has contributed to produce grouping of a picturesque character and outline, and the details and ornamentation are understood to be the result of a careful study and examination of the works of John of Padua. The mansion is built entirely of Ancaster stone of fine quality and colour; the cornices are highly enriched, and the frieze of each order is filled in with carved panels and heads. The arrangements and decorations of the interior are on a similar scale of grandeur, and altogether this is one of the most magnificent houses of the great that adorn our land—at once an embodiment of wealth and stability, and typical of the character of the "sea-girt isle."

The gardens have been formed and the grounds planted by degrees, something being added and something done every year, until in the aggregate the work accomplished is of some magnitude. At first the Baron would have no gardens, but Covent Garden should furnish him with the requisite flowers, fruit, and vegetables. Then he would grow a little fruit, and orchards were planted which now extend over 65 acres. He did not like glass structures, but eventually one house might be built; there are now, counting divisions, some thirty houses for plants, fruit, and general forcing purposes. A strip might be had for a few vegetables, and boarded fences for training trees; now there are some 16 or 17 acres enclosed, a new wall fully a quarter of a mile long, and one of the finest collections of fruit trees in the kingdom. Thus has Mentmore grown, and the pleasure grounds have in-

creased in the same manner, Mr. Smith, with a staff of from forty to fifty men, adding and improving every year, carrying out his own designs after approval by his employers, and completing whatever work he has in hand in the best manner. He evidently works on the principle, and a most excellent one it is, that is embodied in the aphorism, "First see your way, then go ahead." A headlong rush into alterations without due consideration frequently necessitates work having to be done over again, while he who commences an undertaking without a clear perception of the result when finished practically works in the dark. Neither of those mistakes, both of which are somewhat too common, is made at Mentmore.

Having reached the gardens—that is, the glass department, the character of the houses and the work that is done in them may be briefly alluded to, instead of adopting the painfully tedious practice of giving the dimensions of each house and making a dry catalogue of its occupants. The block of glass resembles a nursery, the structures being crowded together as if to utilise every inch of space. With the exception of one very lofty and commodious span-roof, erected for the accommodation of Palms and Tree Ferns, a good greenhouse and three or four vineries, the houses are low, narrow, pit-like structures, admirably adapted for preparing plants for the mansion and for general forcing purposes.

One long range is devoted to Pines, which are admirably cultivated, all the leading varieties being represented. In addition to Queens, Cayennes, Charlotte Rothschild, and Prince Albert, the newer kind, Lady Beatrice Lambton, is fruiting. This is a noble Pine of good quality; and very superior is Lord Carrington, which produces fruit abundantly large for dessert purposes where, as is the case here, a portion of a Pine must never be placed on the table. The plants are grown in pots, and are in the best possible condition; and so far from Pine-growing being an expensive luxury, every fruit that is produced could be readily sold at a price that would render Pine culture decidedly profitable. The superiority of good English-grown Pines over the foreigners that are imported is so great that it is not unlikely that Pine-growing will increase rather than diminish in British gardens; indeed the demand for plants and suckers is much greater than was the case a few years ago. The back wall of one of the Pine stoves is being covered, or rather hidden, by a hedge of Gardenias planted out in a narrow border, and the rich dark green foliage and hundreds of fine blooms suggest that scarcely anything else could occupy the space more satisfactorily. On shelves near the glass table plants are grown at one period and Strawberries forced at another, and thus every inch of space is turned to profitable account.

With the exception of a late house containing capital Lady Downe's and Alicante, also good Muscat Grapes, the vineries were cleared of fruit; but it was plain by the wood and foliage that the Vines of the earlier sorts are in admirable condition. It was observable that they had been half pruned in September with the object of "plumping" the eyes at the base of the laterals, which must be relied on for producing the next crop of fruit. Only few gardeners adopt this practice, but it is a good one nevertheless, as those will find who try the experiment on a few laterals and note the results. Some Vines were being renovated—lifted and placed in fresh soil, and the foliage kept fresh by syringing would incite the production of fresh roots at once. Peaches are grown equally well, all the pruning being done in summer; hence the shoots, brown, hard, and thinly trained, are studded with fruit buds, and full crops are inevitable. Hale's Early is found to be an excellent variety for forcing, and is mainly relied on for the first gatherings. Nearly all the vineries and Peach houses were crowded with plants of all the popular kinds for decorative purposes, as so many are needed for the mansion here and in London—winter-flowering Begonias, Salvias, Eupatoriums, *Veronica salicifolia alba*, Perpetual Carnations, these being grown by the hundred in 4 and 5-inch pots, while all kinds of winter-flowering stove plants occupy all available space in the warmer structures.

A Rose house affords a supply of these always-acceptable flowers, while cool Orchids are grown extensively and well for affording sprays for cutting, *Odontoglossum* now producing vigorous spikes. In a quaint old ridge-and-furrow structure, with brick sides and boarded doors, with small windows between them, Orchids, Ferns, and fine-foliaged plants luxuriate, thus showing that houses with side lights are not needed by plants of this nature, the light from the roof being ample, while fuel is economised and a moist genial atmosphere maintained. Overlooking the glass is Mr. Smith's commodious residence, the walls of which are entirely covered with the thick glossy foliage of *Ragner's Ivy*, which is rarely seen so fine, and adjoining are the garden offices,

fruit-rooms, seed-rooms, &c., all excellently arranged, and comfortable bothies for the under gardeners contiguous.

Proceeding to the mansion we pass a hardy fernery pleasingly formed in a nook in the woods, the very place in which *Ferns* delight. It is surprising what can be done with a few loads of soil and stones thrown up under trees in a series of irregular mounds, with curving paths between, when taste and good judgment are exercised in the arrangement. Here the Ferns have been planted in groups of species and varieties, not the whole regularly dotted and mixed in a weak diluted manner that should never be seen in ferneries of this nature. Emerging into the open is an old-fashioned garden filled with herbaceous plants, the beds, though on grass, being also edged with Box, and here and there are fine clumps of *Arundo conspiciua* with large feathery plumes. On the right is the rosery, which was figured and the planting of the beds described in the *Journal* a few years ago. The walk conduces to the subtropical garden, which is reached through a bowery mass of *Bambusa Metake*. This is a charming spot with its central lawn and fine Conifers, the surrounding shrub-clad banks relieved with masses of *Cannas*, *Daturas*, *Pilumneas*, *Wigandias*, and plants of that nature. But the most beautiful bed of all was furnished with standard plants of *Abutilon vexillarium* in a carpet of *Sedum glaucum*. This *Abutilon* grown as indicated produces an effect totally distinct from anything else, and rich as it is elegant, by the hundreds of scarlet and yellow flowers hanging bell-like from the mottled sprays. Such plants are easily produced by grafting, and are extremely ornamental. This garden, once an old gravel pit, is now one of the most agreeable features of Mentmore, and is altogether most enjoyable.

Almost skirting it is the village entrance to the grounds—a noble drive with lawn embankments crowned with Conifers and flowering trees and shrubs. Where the drive enters the pleasure grounds the left bank terminates in a spur which is occupied by a life-size model in bronze by the eminent sculptor Boehm of a favourite horse of the late Baron, standing in a group of Pampas Grass and partially hidden by a forest of great white plumes, the effect from the mansion and distant part of the grounds being very striking. On the right of the drive and skirting it is a double row closely planted of Junipers and Cypressess, standing like sentinels, with a margin of dwarf evergreens next the road and a background of *Lahurnums*, *Lilacs*, &c., in front of a mass of Pines, the Corsican having proved the quickest grower of all. On the lawn are beds of *Rhododendrons* and *Azaleas*. The park formerly reached almost to the south terrace, but now Mr. Smith is engaged in enclosing several acres and planting them ornamentally, and of the many improvements that have been effected this will probably be the greatest. The pleasure grounds were certainly disproportionate with the splendid mansion, which needed a broader-dressed base to show it to the best advantage, and this it will now have. The Italian flower gardens are on the west side of the building, and the character of one of them at least, for there are two, may be gathered from the engraving (fig. 79, page 481). In this the marble vases and statuary are such as are seldom seen in gardens, and with the masses of flowers and boundary Yew hedges a typical example of this style of gardening is produced. The other panel contains fountains and sloping banks of evergreens—*Mahonia aquifolia* relieved with corner masses of *Aucubas*. From these terraces and the mansion grand views over an undulated park of 1400 acres are obtained. This comprises some of the richest land in the kingdom, hence the rapid growth of the distant new plantations and the fine old timber trees in the immediate foreground. The view is bounded by the Chilterns, and altogether is boldly and variedly picturesque. This mere skeleton description of this imposing residence and its surroundings must suffice, for we must dwell for a moment on the kitchen gardens, to which we now return.

Quite as much care is bestowed here as on the ornamental department. There are no decaying crops, no weeds, no patchiness, but everything is orderly. A systematic arrangement of crops and ground-preparation is apparent at a glance, and closer inspection only shows the excellent culture more clearly. It was the high condition of the kitchen garden at Exton that impressed an influential horticulturist with Mr. Smith's ability, and by that he lost nothing. Immediately a crop is cleared off the strong ground is ridged, it being well known that the summer aeration of such soil is as beneficial as the frost of winter. Practically all the "winter digging" was completed in October. Amongst other crops a trial of Brussels Sprouts showed that the true old imported variety that was common a quarter of a century ago, and which was not obtained without difficulty, is the best of all; the large "improved" sorts are soft and coarse in comparison. It is a pity that a vegetable so excellent as this should almost have been improved out of existence. Of Strawberries a trial is being con-

ducted of forty varieties, most of them also prepared for forcing—splendid plants as were ever produced, and of which we shall hope to hear something in due time. In this garden is one of the finest collections of all kinds of hardy fruit in the kingdom, the best varieties having been obtained from English and continental nurseries. A hint in Gooseberry planting is worth record. The bushes, about 6 feet apart, are each planted on a mound some 2 feet above the general level of the soil, by which simple arrangement the fruit will certainly be less liable to be injured by too close contact with the soil.

Besides vegetables, Violets are grown almost by the acre, being treated like Strawberries, and must afford bushels of flowers. Rose cuttings inserted in some side borders two years ago have formed hedges, hundreds of growths being 6 feet high and some 8 feet. These will be pegged down, and next June there will be a sheet of Roses 3 feet wide on each side of the walk. No Manetti, Briar, or any other cuttings inserted at the same time, and subsequently budded or grafted, could have produced anything like the growth during the same period; but it is not to be expected that everybody will admit the accuracy of this assertion. Here, however, it stands for the contradiction of those who are of a doubting turn of mind.

A large orchard house is erected in this garden filled with fruitful trees and a grand lot of Chrysanthemums; but we will wait for more glass to accompany it before saying any more about the solitary structure.

Just a word must be said about the orchards. In one enclosure there are a few Plums—600 trees of Green Gage and 500 of Victoria, with 1000 of the Crittenden and Prune Damson. In another plantation of forty acres of Apples are 250 trees of Lord Suffield, 300 of Blenheim Pippin, 350 of Dumelow's Seedling, and so on. But the best and most profitable of Apples this year at Mentmore is Lane's Prince Albert. It is a splendid sample; but perhaps the variety might not do equally well everywhere, for another sort that is generally fruitful, failing in few places, will not grow here—Cellini. The trees referred to did not grow freely for a time, but a dressing of 600 tons of London manure appears to have been a good investment, as since that was used they have made satisfactory progress. As I must stop somewhere it may as well be here, and I conclude with a vote of thanks to Mr. and Mrs. Smith for their success in making my visit, if short, pleasant and not soon to be forgotten.—J. WRIGHT.

CHRYSANTHEMUM SHOWS.

KINGSTON.—NOVEMBER 16TH AND 17TH.

No Chrysanthemum society in the kingdom has made such rapid progress as this has. It was only started six years ago, Mr. Moorman, we believe, taking the initiative, and with a few other cultivators organised a committee, and solicited subscriptions with the object of holding a local exhibition. Not only was there a fair response, but the supporters included some spirited individuals, and a 25-guinea challenge cup was provided for open competition. From that moment the Kingston Show assumed much more than a local character, and it may be fairly regarded now as being in substance, if not in name, a national exhibition. It would appear, too, as if the directorate was determined that the position the Society has won shall be maintained, if not increased; as not only are new classes added yearly (that for six blooms of any one variety having proved a great success), but another cup has been provided in place of the one that has been finally won this year, and won by a southern grower. During the three-years contest for this trophy the renowned Liverpool growers, Mr. Tunnington and the late Mr. Faulkner, have proved alike their skill and courage, for only men of mettle would have brought their blooms two hundred miles to compete with others grown, as it were, on the spot. This great "cup class" was the centre of attraction, and such was the interest the contest evoked that cultivators from the districts of Liverpool, Oxford, Bristol, Southampton, and other distant towns were amongst those who crowded round the stands. "Won easily" was a somewhat general exclamation on the first glance being had of the collections; but a critical examination of the blooms individually impressed not a few that the contest was exceedingly close—so close that in all likelihood, had the Putney blooms been taken to Liverpool instead of the Calderstone specimens being brought to Kingston, the position of the two great competitors would have been reversed. We say the two, for on this occasion Mr. Leyland's blooms, though beautifully fresh, were a week behind. Some of the incurved blooms staged by Mr. Tunnington were superior to those arranged by Mr. Harding; but the former exhibitor was overwhelmed in Japanese by the latter, a magnificent Elaine from Liverpool, by far the finest of that variety in the Show notwithstanding.

As we have indicated, the cup was won by Mr. Harding, gardener to J. D. Galpin, Esq., Bristol House, Putney Heath, with a magnificent collection, comprising blooms of the following varieties, taking the Japanese first:—Madame C. Andiguier, Bronze Dragon, Fanny Bouchardat, Fair Maid of Guernsey, Comtesse de Beauregarde, Dr.

Masters, Baronne de Prailly, Comte de Germany, Madame Burnes, Curiosity, M. Plancenau, Garnet, M. Ardene, Criterion, Thunberg, Triomphe de Chatelet, Madame Moulise, Plantagenet, Bouquet Fait, L'Incomparable, Fulgore, Madame Monarch, Elaine, and La Nympe. The incurved varieties were as follows:—Empress of India, Empress Eugénie, White Venus, Golden Queen, Mr. Brunlees, Mr. Bunn, Alfred Salter, Mrs. Heale, Princess Beatrice, Jardin des Plantes, Prince of Wales, Venus, Nil Desperandum, Prince Alfred, Lady Hardinge, John Salter, Novelty, Pink Perfection, Golden Empress of India, Hero of Stoke Newington, Mrs. Haliburton, Queen of England, Princess Teck, and La Grande. It need scarcely be said that these blooms received the principal attention of the visitors, and the admiring comments passed upon them by the more critical sufficiently indicated their merit. Mr. Harding well deserves the honour he has striven for perseveringly and won creditably. Mr. W. Tunnington, gardener to Chas. MacIver, Esq., Calderstones, Liverpool, who followed, had fine examples in his stand of Japanese of Baronne de Prailly, Criterion, Elaine (magnificent), Peter the Great, Cry Kang, Japonius, The Cossack, La Nympe, and Gloire de Toulouse. The back row in his stand of incurved varieties comprised grand blooms of White and Golden Empress of India, John Salter, and Queen of England; other fine blooms being Beauty, Barbara, Beethoven, and Prince Alfred. F. R. Leyland, Esq., Woolton Hall, Liverpool, who was third, had collections of even, fresh, and bright blooms, but not so forward as the others.

The second challenge vase was offered under similar conditions to the other, but with the stipulation that the three winners of the first would not be allowed to compete for the second this year, though they will be free to enter the lists at the next show. Five competitors appeared, all staging collections of great merit, but the premier forty-eight blooms from Mr. E. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, Bishops Waltham, were exceedingly fine, well deserving the position accorded them, and once more the vase is secured by a southern exhibitor, who, if he continues in his present style, will prove a formidable adversary for any southern or northern growers that may enter the lists in the next two or three years. His stand of Japanese comprised blooms of the following varieties:—Madame C. Audiguier, extremely fine; Hiver Fleur, Oracle, Elaine, Madame B. Rendatler, Yellow Dragon, Thunberg, Khedive, M. Delaux, Sarnia, Criterion, Cry Kang, Meg Merrilees, Comte de Germany, Soleil de Levant, Peter the Great, M. Ardene, Aurantiacum, Mdle. Moulise, Boule d'Or, Album plenum, Baronne de Prailly, Fair Maid of Guernsey, and The Daimio. The incurved were Golden Empress of India, Princess Teck, Mabel Ward, Alfred Salter, Baron Beust, Barbara, Mr. Howe, Jardin des Plantes, Margaret, Guernsey Nugget, Beauty, Princess of Wales, Cherub, Lady Hardinge, Empress of India, Refulgence, White Venus, Prince Alfred, Mr. Bunn, Orange Perfection, Mrs. Heale, Hero of Stoke Newington, Queen of England, and Eve. Mr. C. Gibson, gardener to J. Wormald, Esq., Morden Park, Mitcham, was second with an even fresh collection, but his finest blooms were in his premier stand of forty-eight at the Westminster Aquarium, and had these been shown at Kingston the contest for the cup would have been extremely keen, and might not have resulted so favourably to Mr. Molyneux. Mr. J. Jellicoe, Camp Hill, Woolton, Liverpool, took the third place, his incurved blooms being very meritorious, but the northern growers will probably appear in stronger force and better form next season to maintain their credit.

Another of the leading classes was that for twenty-four incurved blooms, the chief prize being a timepiece value four guineas. This was awarded to Mr. F. R. Leyland, and it will be remembered that the late Mr. Faulkner also won a similar prize in this class last year in addition to the champion vase, so that the Woolton Hall blooms scored three decided triumphs at Kingston. Many of the blooms in this stand were of great merit, examples of Mr. Bunn, Mr. Howe, Blonde Beauty, and Barbara being very notable. Messrs. Harding and Tunnington were placed second and third, their positions being thus strangely reversed as compared with the old cup class, and Mr. E. Beckett was fourth. For twelve incurved, Messrs. Molyneux; G. Woodgate, gardener to Mrs. Hammersley, Warren House, Kingston Hill; J. Strong, gardener to J. Sweet, Esq., Dornay House, Weybridge; and W. Burns, gardener to H. A. Bigg, Esq., Wykham Lodge, Hersham, were the prizetakers in that order, the leading collection being particularly fine. Mr. Molyneux also took the first prize for six incurved blooms of one variety with large, even, substantial, and smooth blooms of Princess of Wales; Mr. T. Benson, gardener to W. H. Roots, Esq., Kingston, being second with magnificent examples of Empress of India, Mr. Strong following with Golden Empress also in beautiful condition.

Japanese varieties were well represented in the classes specially devoted to them, several beautiful collections of twenty-four being contributed. In this class Mr. E. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher, won chief honours with large and richly coloured blooms of M. Delaux, Bronze Dragon, Fanny Bouchardat, Comte de Germany, Thunberg, Père Delaux, Boule d'Or, L'Incomparable, Criterion, Garnet, Comtesse de Beauregarde, Grandiflorum, and Album plenum. Messrs. King, Harding, and Woodgate followed closely in that order. Collections of twelve were staged by Messrs. Burns, Croxford, Strong, and Tunnington, who secured all the prizes. However, the class for six blooms of one variety perhaps attracted more attention than the others, for the blooms entered were uncom-

monly fine, especially Mr. Molyneux's half a dozen examples of *Madame C. Audiguier*, which were simply superb, and most fully merited the leading prize awarded for them. Mr. C. Herrin took the second place with *Hiver Fleur*, also good; and Mr. King was a good third with *Baronne de Prailly*.

Amongst the other classes for blooms the most noteworthy were those for reflexed, Anemones, and Pompon varieties. In the first-named for twelve blooms Mr. Molyneux again occupied the principal position with fresh neat specimens of *Golden Christine*, King of Crimsons, *Chevalier Domage*, Emperor of China, Cloth of Gold, Mrs. Forsyth, Dr. Sharpe, and Pink Christine. Messrs. J. Hill (gardener to A. Savory, Esq., Chertsey), and Coombs, were second and third respectively. For twelve Anemone blooms, not less than six varieties, Mr. Gibson won with *Lady Marguerite*, *Acquisition*, St. Margaret, *Gluck*, *Fleur de Marie*, Prince of Anemones, *Madame Godereau*, Louis Bonamy, and *Princess Charlotte*; Messrs. Molyneux and Orchard following. Mr. J. Lyne, Wimbledon, staged the best twelve Anemone Pompons; *Calliope*, *Firefly*, *Dick Turpin*, *Madame Montels*, and Mr. Astie being fine; and the same exhibitor was first with twelve bunches of ordinary Pompons, showing neat examples of *Bijou d'Horticulture*, *Model of Perfection*, St. Michael, Chas. Dickens, *Madame Marthe*, *Liliputian*, and *Snowball*.

Plants were not so well represented as the cut blooms, if the groups and the specimens not in competition from J. H. Bryant, Esq., Glencairn, Surbiton Hill, be excepted. The latter formed one of the features of the Exhibition, the plants having been admirably grown and trained with the greatest care. A central specimen of Mr. G. Glenney over 20 feet in circumference, flat-trained, and bearing about 250 blooms, was especially handsome, others of slightly smaller size being contributed, with some standards and dwarf Pompons, and it was stated that all were under eleven months old. For a collection arranged in a space of 50 square feet Mr. C. Orchard, gardener to J. Galsworthy, Esq., Coombe Lodge, Kingston Hill, won first honours with a handsome bank, the blooms large, and the colours tastefully arranged. Mr. J. Croxford, gardener to Mrs. Dunnage, Allbury House, Surbiton; Mr. J. Buss, gardener to A. S. Price, Esq., Parkside; and Mr. D. Gibbons, gardener to Mrs. Beckford, Orford House, Ham, were the other prizetakers, all contributing showy groups. The principal successful exhibitors in other plant classes were Messrs. Hoskins, Lyne, King, and Burns. Tasteful groups of miscellaneous plants were staged by Messrs. Attrill, King, and Grant; table and berried plants being well shown by Messrs. Munro, Bates, King, Hickie, and Coombs.

Fruit was not very abundant but mostly of fair quality, especially

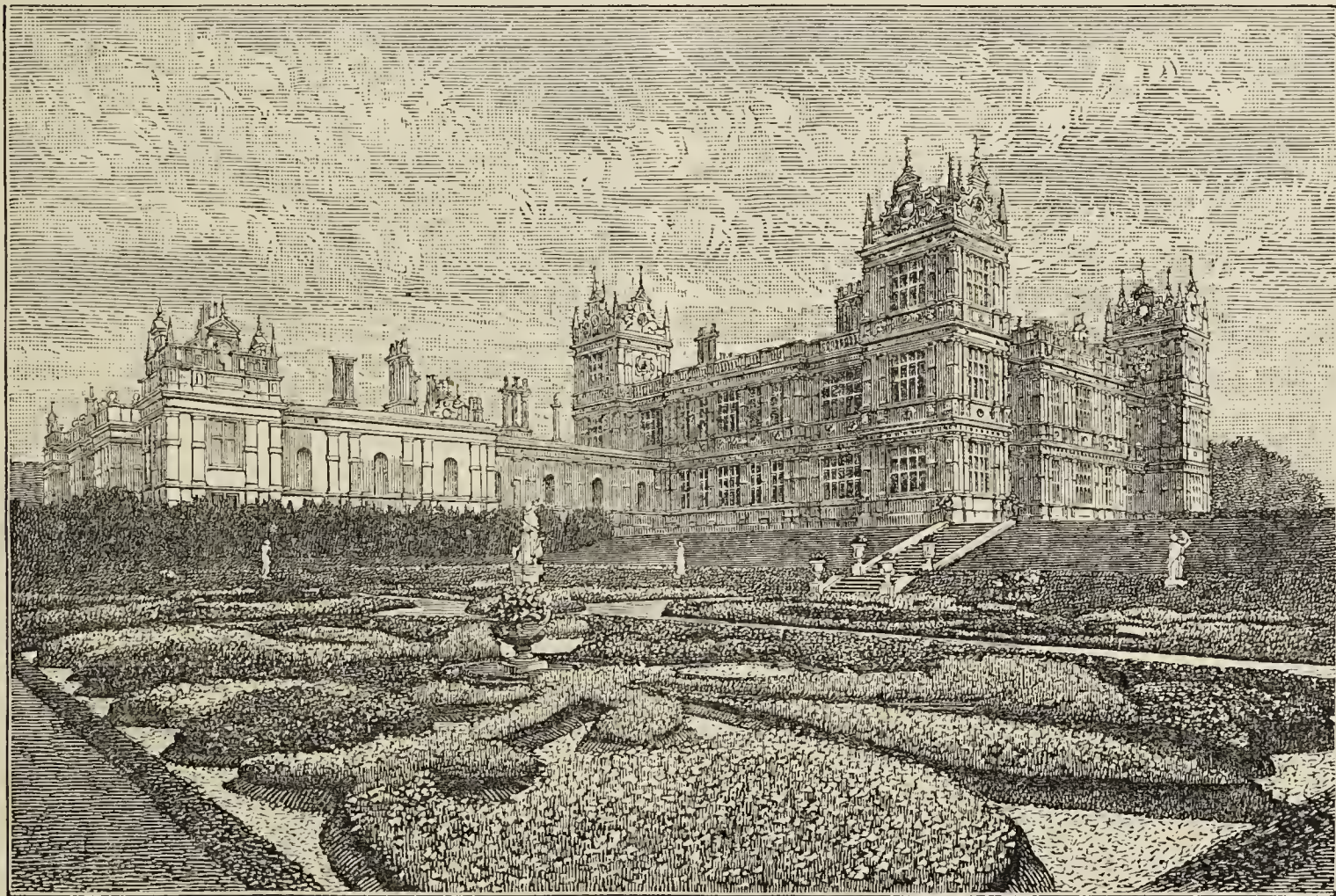


Fig. 79.—MENTMORE. (See page 479).

the Apples and Pears. Mr. Bates, The Gardens, Poulett Lodge, Twickenham, was placed first with a collection of six dishes, which included a neat Prince Albert Pine Apple, Gros Colman and Muscat of Alexandria Grapes, and *Beurré Diel* Pears; Messrs. Beckett and Munroe followed. Mr. C. Attrill had the best Apples, and Mr. King the best Pears, four dishes each of fair size.

Exhibits not for competition comprised a stand of new Chrysanthemums from Messrs. Jackson & Son, Kingston, including several that were certificated at the last meeting of the Royal Horticultural Society. Messrs. Hooper & Co., Covent Garden, had a pretty group of Carnations, but the most notable of all were the specimen plants already referred to. As a whole the Exhibition was highly satisfactory in a horticultural point of view, but unfortunately the weather on the first day was seriously opposed to a financial success, especially as the expenses in connection with hiring hall are larger than in previous years. However, under the care of the Treasurer Mr. J. Drewitt, and the Honorary Secretary Mr. T. Jackson, the Society will undoubtedly overcome any difficulties of that nature, and the continued prosperity will be insured.

TUNBRIDGE WELLS.—NOVEMBER 16TH AND 17TH.

Electric lighting is now being so generally tried for large public buildings, that it is not surprising flower shows should be favoured with a share of the brilliant illumination, and the results of the

experiments in that direction at Kensington proved sufficiently satisfactory to encourage further trials. It has, however, hitherto been confined to the summer exhibitions, a period when it was less needed than at this time of year; and, as far as we know, the first attempt to light a show of Chrysanthemums in this way was at Tunbridge Wells last week. There, by the liberality of Dr. Siemens, the large skating rink, about 150 feet long by 60 broad, was flooded with a brilliant yet soft and steady light on each of the two evenings of the Show. Six lamps were provided, each said to be of four-hundred candle power, and in consequence the hall was literally as light as day, the varied colours of the Chrysanthemums, the rich Poinsettias, and other plants being seen as clearly and unaltered as under sunlight. The fact of the electric lighting being employed proved almost as attractive as the display itself; and though the weather on the first day was very unfavourable, the receipts up to 5 P.M. being considerably below those of last year, yet the attendance in the evening was so large that the deficiency was nearly supplied before closing time, the second day's receipts also proving very satisfactory. It would, however, be interesting to know whether there is any probability that the experiment might have been satisfactory financially had the Society provided the lamps as well as the motive power.

Horticulturally the Show was both extensive and successful, plants and blooms being largely shown, the former including some of the

best specimens we have seen this season. Fruit is always an interesting feature at Tunbridge Wells, and though the display was not quite so large as usual, still the quality of the exhibits amply compensated for any deficiency in that respect. Sixty-two classes were enumerated in the schedule, and in the majority of these the competition was keen considering the comparatively small value of the prizes; but as we cannot give notes of all these in detail, a brief reference to the most important must suffice. It should be observed that a large bank of plants was formed at each end of the hall and along the side facing the entrance, the blooms, fruit, and smaller plants occupying two tables extending the whole length of the hall.

Plants.—Specimen plants, except in a few instances, have not been well shown this year at any of the southern exhibitions, but taking them generally those at Tunbridge Wells must be placed amongst the best. Those staged by Mr. Beilby, gardener to W. H. Tindall, Esq., Hollyshaw, were especially noteworthy, and their excellence is well indicated by the fact that they were placed first in each of the seven classes in which Mr. Beilby was a competitor, and as these were the only ones he entered he has every reason to be satisfied with his success. The most important of these were in the class for a group of eight plants in 12-inch pots, the chief prize for which was a silver cup, value three guineas, offered by the tradesmen of the town. They comprised two fine pyramidal-trained specimens of Mrs. Dixon and Mr. G. Glenny 6 feet high, healthy, and bearing numerous flowers; a dwarf example of Peter the Great, 5 feet in diameter, with good plants of Mrs. G. Rundle, Pink Venns, Fanny, and Dr. Sharpe, the blooms of which were very large and deeply coloured. The winning collection of six dwarf-trained large-flowered varieties also comprised well-grown plants, Dr. Sharpe being again noteworthy for the size of the blooms, Jardin des Plantes, Mrs. Haliburton, Guernsey Nugget, Mrs. Dixon, and Mrs. George Rundle being similarly good. The six Pompons included Calliope, Antonius, Fanny, Cedo Nulli (white and yellow) being freely flowered, 3 or 4 feet in diameter; while the two best single specimen Pompons were a fine example of Antonius, 5 feet across and in first-rate condition, and one of Mr. Astie of similar size. Pyramidal specimens were also shown by Mr. Beilby in equally creditable condition. He was followed in the above classes by Messrs. F. Earley, gardener to G. A. Brittain, Esq., Fendale House; E. Killick, gardener to E. Locke, Esq., Neville Park, Gardfield; and J. Wilkins, gardener to Mrs. B. S. Williams, Shirley Hall.

In another class for a group of eight Chrysanthemums in pots, which was confined to gentlemen's gardeners and amateurs residing within fourteen miles of Tunbridge Wells, Mr. Adams, gardener to F. Grant, Esq., 3, Hungershall Park, won the silver cup offered by the ladies of the town with healthy freely-flowered specimens of Mons. C. Hubert, Yellow Cedo Nulli, Mrs. G. Rundle, Mrs. Dixon, and Mr. G. Glenny amongst others. Messrs. W. Berwick, gardener to W. W. Doke, Esq., 2, Broadwater Down, and J. Wilkins secured the other prizes in that class. Mr. Adams was also very successful in other smaller classes for Pompons, a pair of the same type and a single specimen taking the first position in each. White Cedo Nulli, Antonius, Calliope, and Mr. Astie were the varieties represented, several 5 feet in diameter, healthy, and abundantly flowered. Mr. Wilkins had a neat collection of Pompons, securing the chief position in the district section.

Cut Blooms.—Incurved blooms were generally rather small, and it was in this portion of the Show that there was the greatest room for improvement, the blooms in the majority of the stands being rather below the average. The Anemone varieties were, however, a notable exception, being extremely well represented, and several very creditable collections of Japanese were also contributed. Mr. A. Henderson, gardener to J. Deacon, Esq., Mabledon, Tonbridge, had the best twenty-four incurved in the district classes, including a good selection of varieties. He also took the lead with twelve Japanese, comprising fine blooms of Abd el Kadir, Baronne de Prailly, Apollo, and Oracle. Messrs. W. Cheek, gardener to J. F. Gibson, Esq., 10, Broadwater Down, J. Allen, and Earley secured the majority of secondary prizes in this section. Mr. Roberts, gardener to Mrs. Hollamby, Highfield House, showed Anemone varieties exceedingly well, the blooms large but neat and fresh. Mr. Allan also had some good examples of these varieties, and obtained several leading prizes. In the classes open to exhibitors in Mid-Kent and East Sussex Messrs. G. Ware, gardener to Mrs. Morgan, 2, Hungershall Park, F. Earley, and J. Roberts were the most successful competitors.

Miscellaneous plants were not shown in very large numbers, but several exhibits were of great merit, particularly the Gesnerias from Mr. Buehanan, gardener to Dr. Siemens, Sherwood, which were deservedly placed first in the class reserved for these plants. The specimens were of the zebrina type in 8-inch pots, and each had twelve or fourteen large panicles of flowers. The decorative value of such specimens cannot be too highly estimated. Dwarf handsome Pomsettias were contributed by Messrs. Charlton, Earley, and Allan, the heads and bracts being very large and richly coloured. Table plants were also shown in strong force, Messrs. Wilkins, Goldsmith, and Farmer staging the winning collections—neat, graceful, little plants. Primulas and Epiphyllums were well shown by Messrs. Allan, Earley, Read, Farmer, and Holland.

Fruit.—This invariably forms one of the features at Tunbridge Wells; and though we have seen a larger display at previous shows, yet, considering the season, the quality was most satisfactory of the

leading exhibits. For a collection of twelve dishes of fruit Mr. Henderson secured chief honours with well-coloured fine bunches of Black Alicante Grapes, fairly coloured Golden Queen Grapes, by far the best example of this variety in the Show, several other bunches being of the peculiarly dirty colour too often distinguishing it. A handsome Queen Pine and fine fruits of Doyenné du Comice and the brightly coloured Forcille Pears were also noteworthy. Mr. J. Allan, gardener to J. Hanbury Field, Esq., Ashurst Park, was a good second, his best dishes comprising Black Alicante Grapes, Beurré Clairgeau Pears, and King Pippin Apples. Mr. G. Goldsmith, gardener to P. Hardwicke, Esq., Hollenden, Hildenborough, who was third, had large examples of Beurré Diel and Delices de Hardenpoint Pears amongst others. Mr. A. Bashford, gardener to Mrs. Stoddart Douglas, Chilston House, was first in the class for black Grapes with three handsome bunches of Black Alicante, Messrs. Henderson and Wilkins following with the same variety. In the white Grape class Mr. W. Johnston, gardener to the Marchioness of Camden, Bayham, took the lead with Muscat of Alexandria, the berries large and well coloured; Mr. L. Pope, gardener to J. J. Barrow, Esq., Holmwood, being second with large bunches of Trebbiano fairly coloured, and Mr. Wilkins third with Golden Queen.

For six dishes of dessert Pears Mr. Goldsmith won chief honours with large specimens of Beurré Hardy, Glou Morceau, Beurré Diel, Soldat Labourcur, Prince of Wales, and Doyenné du Comice. Mr. Johnston had the best three dishes, comprising Beurré Bachelier, Doyenné du Comice, and Beurré d'Anjou of good appearance. Mr. Goldsmith staged the leading collection of six dishes of culinary Pears; Catillae, Uvedale's St. Germain's, and Bellissime d'Hiver being of considerable size. With six dishes of dessert Apples Mr. Goldsmith was again the most successful exhibitor with fine fruits of Golden Pippin, Court Pendu Plat, Cox's Orange Pippin, Colonel Vaughan, Ribston Pippin, and King Pippin. In the classes for three dishes and one dish of dessert Apples, and six and three dishes respectively of culinary Apples, Mr. Goldsmith also gained first honours with good specimens.

Prominent amongst the not-for-competition contributions were the following:—Large collections of fruit from Mr. Bridger, and Mr. J. Rust, Eridge Castle; vegetables from Mr. J. Nutting, gardener to Col. Ramsden, Ashurst; and remarkably well-grown plants of Bouvardia rosea oculata, with B. Alfred Neuner, from Mr. John Charlton, Summerwell Nursery. All the arrangements were satisfactory, and much credit is due to Mr. E. Charlton, the Hon. Sec., for his energetic management of the Society's affairs.

ROYAL AQUARIUM, WESTMINSTER.—NOVEMBER 15TH AND 16TH.

The thirty-sixth annual Exhibition of the Borough of Hackney Chrysanthemum Society, held at the above popular resort, proved one of the best in their long list of successful shows both in number of exhibits and general excellence. The cut blooms particularly were magnificent in the leading classes, and though the plants were not quite so satisfactory as might have been desirable, yet ample compensation was made for this defect in the fruit and vegetable classes, which were exceedingly well filled.

Cut Blooms.—The chief interest in regard to these centred in the class for forty-eight blooms, twenty-four incurved, not less than eighteen varieties, and the same number of Japanese, the prizes offered by the Society being first £10, second £2, third £1. Six magnificent collections were staged in this class, Mr. C. Gibson, gardener to J. Wormald, Esq., Morden Park, securing chief honours with superb blooms of great size and yet not coarse. The incurved blooms were grand in form and substance, including Empress of India, Golden Empress of India, Golden Eagle, Refulgence, John Salter, Mrs. Heale, Mrs. Dixon, Queen of England, Nil Desperandum, Lady Carey, Hero of Stoke Newington, Mrs. G. Rundle, Alfred Salter, Lady Slade, Mr. G. Glenny, and Cherub. The Japanese were of wonderful size, rich and clean, the following being well represented:—Ethel, Baronne de Prailly, Elaine, M. Ardene, Album plenum, Peter the Great, Comtesse de Beaugarde, Criterion, M. Delaux, Hiver Fleur, Nagasaki Violet, Fair Maid of Guernsey, Mad. Moulise, Arlequin, Garnet, Fanny Bouchardat, and Album striatum. A pair of Criterion were greatly admired, and finer examples have not been shown this year. The second place was accorded to C. Herrin, Esq., Calfont Park, Gerrard's Cross, Slough, whose collection was very slightly inferior to the first, the Japanese being especially handsome, comprising enormous examples of The Daimio, with fine blooms of Grandiflorum, Père Delaux, Criterion, Album plenum, and Mad. C. Audiguer. Mr. F. Mease, gardener to C. F. Newman, Esq., Wyncote, Liverpool, was third with fair blooms.

There was very good competition in the open class for twenty-four Japanese blooms, Mr. C. Herrin being adjudged the leading position amongst eight competitors, all of whom exhibited fine blooms. The first-prize stand contained beautiful specimens of The Daimio, Album plenum, Magnum Bonum, Mons. Ardene, Fair Maid of Guernsey, Père Delaux, Madame C. Audiguer, Peter the Great, Baronne de Prailly, and The Sultan. Mr. Gibson followed, but the competition between these was extremely keen, as the Morden Park blooms were uncommonly good. Messrs. J. Garaway & Co., Durdham Downs Nursery, Bristol, were third, and Mr. Monk fourth. The principal open class for incurved blooms was that for twenty-four, eight collections being staged. Mr. G. Langdon, gardener to Drs. Munroe & Adams, Brook House, Upper Clapton, taking the first place with handsome blooms;

Mr. Berry, gardener to the Countess of Leven and Melville, Roehampton, and Mr. J. R. Wildman, 46, Peckham Grove, Peckham, being second and third respectively. For eighteen blooms Messrs. Berry; F. W. Griffin, Gothic Cottage, Sydenham; W. Jupp, Eastbourne, Sussex; and J. Major, Eyn Park, Barnet, were the prizetakers in that order. There was an extraordinary competition in the class for twelve blooms, not less than seventeen stands being entered, and a large proportion of these were so nearly equal in merit that the Judges had considerable difficulty in awarding the prizes. Mr. J. Ridout, gardener to R. B. Haywood, Esq., Woodhatch Lodge, Reigate, was ultimately placed first, being followed closely by Messrs. Herrin, Berry, and Hillier. Anemone-flowered varieties were well shown by Messrs. Gibson, Berry, Butcher, and Huntley, who gained the chief prizes. The special prize of a silver-plated tea and coffee service, offered by Mr. N. Davis, 66, Warner Road, Camberwell, for eighteen varieties of Pompons, three blooms of each, brought five competitors, Mr. Butcher being the successful one with a pleasing collection, the blooms of good size, form, and colour. They comprised Madame Marthe, St. Michael, Salomon, President, Lilac and White Cedo Nulli, Andromeda, Rosetta, Prince Alfred, Sœur Melanie, Adonis, Souvenir de Jersey, Adèle Priset, Fanny, Golden Madame Marthe, Marabout, Lavary, and Model of Perfection. In the numerous other classes the exhibits were also good.

Amongst the specimen plants the two groups from Messrs. Mahood and Stevens of Putney, who occupied similar positions to those they obtained at the Putney Show on the previous day, were the chief features, the blooms on most of the plants being quite up to an exhibition standard, and would not have disgraced many of the competing collections in the bloom classes. They were also well arranged, banks of Palms at the back serving to relieve the abundant colour.

Fruit.—Grapes were well represented in several classes, the best Black Alicantes being shown by Mr. R. Holmes, gardener to T. Wallis, Esq., Sister House, Clapham Common—neat bunches well coloured. Mr. S. Lyon, The Gardens, Sundridge Park, Bromley, Kent, took the lead with Gros Colman, three fine bunches, the berries large and admirably coloured, a quality in which the other exhibitors in the same class were rather deficient. Mr. E. Smith, gardener to F. H. Sewell, Esq., Warren Hill, Loughton, secured the chief position with Muscat of Alexandria, fairly good bunches, fine berries, and well ripened; while in the any other variety class Mr. G. Summers, gardener to the Earl of Scarborough, Sandbeck Park, won the first prize with very large finely coloured bunches of Gros Guillaume. Dessert and culinary Apples were represented in large numbers; Mr. Austen, The Gardens, Ashton Court, Bristol, taking the lead in the former, and Mr. W. Fowle, gardener to Sir H. Mildmay, Bart., Dogmersfield, Herts, securing a similar position in the latter. Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, had the best collection of dessert Pears—viz., fine examples of Beurré Diel, Napoleon, Josephine de Malines, Doyenné du Comice, Glou Morceau, and Duchesse d'Angoulême. Mr. A. Waterman, gardener to W. A. Brassey, Esq., M.P., Preston Hall, Aylesford, was adjudged the first prize for a collection of fruit. The numerous prizes offered by Messrs. Sutton & Sons, Reading; Carter & Co., Holborn; and Webb & Sons, Stourbridge; and Hooper & Co., Covent Garden, for vegetables, were well competed for, the quality of the exhibits being generally most satisfactory.

Miscellaneous exhibits were not very numerous, but the beautiful collections of Salvias, Primulas, Pelargoniums, and other plants from Messrs. H. Cannell & Sons, Swanley, Kent, were an important feature in the Show, and attracted much admiration.

TOOTING.—NOVEMBER 14TH AND 15TH.

This newly constituted Society held their first Exhibition last week at the Vestry Hall, Tooting, and proved a great success. The schedule comprised sixty-seven classes, the majority of which were well filled, and in many instances the competition was very keen; particularly was this so in the cut bloom classes, table decorations, and Primulas. The prizes for groups were only fairly competed for, the first prize going to Mr. G. Collings, gardener to J. Anderson Rose, Esq., for good plants tastefully arranged; Mr. T. Bunley, gardener to W. P. Galton, Esq., Park House, Upper Tooting, was placed second. This collection contained really the best flowers, but not so well arranged. Mr. Luff, gardener to J. Hyatt, Esq., Streatham, was third. In the classes for trained plants the principal prizes were secured by Mr. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, and Mr. Bunley. In the open class for forty-eight cut blooms, twenty-four Japanese and twenty-four incurved, there were three good collections staged, the premier award being gained by Mr. A. Holmes, gardener to A. B. Heale, Esq., Hawthorns, Clapham, for remarkably even blooms of good substance, fresh and bright. Mr. Glide, gardener to J. Wilson, Esq., The Laurels, Tooting, was a very good second, and Mr. J. Holmes, gardener to G. M. Story, Esq., Nightingale Lane, third, all showing well. Mr. A. Holmes was also first in the class for twelve incurved blooms, his Empress of India, White Globe, Mrs. Heale, and Golden Empress of India being particularly fine. Mr. C. Salter gained second honours, and Mr. J. Eade, gardener to J. G. Bonner, Esq., Bridge House, Tooting, third; there were six competitors in this class. The prizes for six cut blooms went to Mr. J. Holmes; Mr. Ball, gardener to H. Doulton, Esq., The Woodlands, Tooting; Mr. J. Cushon, gardener to A. Grote, Esq., The Elms, Upper Tooting; and Mr. E. Bingham, gardener to Miss Goldsmith, Lynewood, Tooting, in the order of their names.

For twelve blooms, Japanese, distinct, Mr. Alderman, gardener to C. Carnizow, Esq., Mitcham, was a capital first, staging good blooms of the best varieties. Mr. Clarked, gardener to J. Rams, Esq., Nightingale Lane, and Mr. J. Eade, were placed second and third respectively. For six blooms, Japanese, distinct, Messrs. Cooke, Eade, and Alderman shared the honours. Large-flowering Anemones and Anemone Pompons all added to the attractions of this really good display.

Classes were appropriated to stove and greenhouse flowering plants, also for fine-foliage. Messrs. Nunn, Bunley, Austin, and Luff were the prizetakers. The competition was very close in classes for Primulas; several excellent collections were staged. Bonvardias and Zonal Pelargoniums were also well represented.

Both fruit and vegetables were shown in good condition, especially the Grapes, the Muscat of Alexandrias from Mr. Alderman and Mr. Eade being well finished. Several classes with suitable prizes were open to ladies, and well contested for; the first prize, for a centrepiece for table decoration, was awarded to Mrs. Kesterton, Dudley House, Nightingale Lane. The whole of the arrangements were well carried out by Mr. W. Hugh Gower, the Secretary, and the executive, who are to be congratulated on the success attained by their first attempt, and we hear that a summer exhibition is contemplated, which no doubt will be equally as successful under such able management.

WALTON-ON-THAMES.—NOVEMBER 14TH AND 15TH.

An Exhibition of considerable merit though of moderate extent is invariably provided by this energetic Society, and that held last week was no exception to the rule. Indeed there was a noteworthy improvement in some classes, and the general condition of the plants and blooms was all that could be desired.

Plants.—Several very creditable collections of these were staged, particularly fine being the six specimens of large-flowering varieties, with which Mr. Burns, gardener to H. A. Rigg, Esq., Hersham, won the special prize, a four-guinea silver watch, the best being Venus, Mrs. G. Rundle, and George Glenny. Messrs. Cornhill, gardener to E. Pettit, Esq., and Millican, gardener to Mrs. Cobbett, securing the other prizes in that class. Mr. Millican took the lead in the class for six standards in 12-inch pots with healthy well-flowered specimens, Prince Alfred and Prince of Wales being especially fine. He was followed by Mr. Reynolds, gardener to Mrs. Allen; and Mr. Reid, gardener to C. A. Ledward, Esq., both the latter being from Weybridge. Messrs. Burns, Millican, Cornhill, Reynolds, and Boxall carried off the prizes in other smaller classes, Mr. Millican's single specimen of Mrs. Rundle being noteworthy. Pompons were admirably represented in the chief collections from Messrs. Cornhill, Reynolds, Millican, and Reid. The standards which gained Mr. Millican the principal award in that class were very creditable, Marie Stuart, Marguerite de Coix, Mdle. Marthe, and President being the varieties, healthy, neatly trained, and very freely flowered.

Blooms.—Numerous handsome collections of blooms were staged, a most satisfactory freshness being observable; the majority, too were characterised by their substance and evenness, the rough blooms being the exception rather than the rule, as is often the case at local shows. The principal open class was that for twenty-four incurved blooms, Mr. Strong, gardener to H. Sweet, Esq., Weybridge, gaining chief honours with examples of the finest exhibition varieties in the usual good condition that distinguishes his exhibits. Mr. Hill, gardener to H. Savory, Esq., Chertsey, and Mr. Burns followed in that order, both showing neat blooms. In the district class for the same number of blooms Messrs. Burns, Reynolds, and Cornhill won the honours, while Mr. Strong followed up his previous success by again taking the first position with twelve incurved blooms. Next in merit were the Japanese, Mr. Burns staging a beautiful collection of twenty-four, comprising handsome blooms of all the most popular varieties. He was closely followed by Messrs. Cornhill and Reynolds. Mr. Strong scored his third success by winning chief honours for twelve Japanese, Messrs. Millican, Boxall, and Plowman securing the second and third prizes, the last two named being equal. Anemones, reflexed, and Pompons were also represented, several of the above-named exhibitors carrying off the prizes. Bouquets, stands of flowers, &c., were shown by amateurs and cottagers, some displaying much taste in the arrangement.

DARTFORD.—NOVEMBER 15TH AND 16TH.

For the twelfth season this Society held their autumn Exhibition in the Victoria Assembly Rooms, Dartford, on the above dates. A considerable falling-off in the large plant classes divested the Exhibition of its chief attraction. The cut bloom classes, on the other hand, were better filled than in former years, several new growers having come to the front, so that in these there was a really good display. The chief interest centred in the class for twenty-four incurved blooms, distinct, for which a silver cup value six guineas was offered, with second, third, and fourth prizes of 30s., 20s., and 10s. respectively. Mr. Martin, gardener to C. N. Kidd, Esq., Dartford, easily won the premier award with remarkably even blooms, comprising the following varieties:—Prince of Wales, John Salter, White Globe, Prince Alfred, Mr. Bunn, Sir Stafford Carey, Mrs. Heale, Lady Slade, Jardin des Plantes, Princess of Wales, Empress of India, St. Patrick, Golden Empress of India, Refulgence, Princess Teck, Hero of Stoke Newington, Mrs. Dixon, Baronne Beust, White Venus, Lady Hardinge, Eve, Barbara, Mrs. Shipman, and Lady Talfourd. Mr.

Dancer was placed second in the classes for twelve and six blooms. Mr. Martin was again to the front, securing the first prizes in both cases. For twenty-four Japanese varieties Mr. Dancer was a very good first, having amongst others good blooms of Dr. Macary, Madame C. Audiguier, Cry Kang, Père Delaux, Jane Salter, and M. Delaux. Mr. Dancer was also first for twelve varieties, and Mr. Martin for twelve blooms six varieties. Several amateurs' and cottagers' productions were staged both in flowers, fruit, and vegetables, and the arrangements were admirably carried out by Mr. W. Shelton (Secretary), Mr. Evitt (Chairman), and Mr. C. White (Treasurer).

PLYMOUTH.—NOVEMBER 14TH AND 15TH.

This old-established Society appears to be regaining its old prestige, judging from the keen competition in nearly all the cut-bloom classes of the Exhibition held in the Guildhall, Plymouth, last week. Mr. Tallack, gardener to C. G. Prideaux Brune, Esq., secured the special prize offered by J. H. Pulleston, Esq., M.P., for twenty-four blooms, distinct—viz., six Japanese, six incurved, six Anemones, and six Pompons, with magnificent blooms of Empress of India, Golden Empress, Prince Alfred, Fair Maid of Guernsey, Soliel Levant, Dr. Masters, Red Gauntlet, &c. Mr. Moorman of Kingston was awarded the second prize with a good collection.

For twenty-four blooms, large-flowering, the Earl of Devon and Mr. C. Norrington were first and second respectively; and for six blooms of Mrs. G. Rundle, Mr. J. B. Williams and the Earl of Devon secured the prizes in that order. Other successful exhibitors were the Rev. J. Parlbay, Mr. G. H. Rundle, Mr. W. Pengelly, Mr. Short, Mr. Masters, and Mr. Mallet. Numerous classes for miscellaneous subjects were well filled. Altogether it was a magnificent Show and well patronised.

CANTERBURY.—NOVEMBER 15TH AND 16TH.

A correspondent sends a report of the fifth annual Show of the Canterbury Gardeners' Mutual Improvement Society, which was held in the Foresters' Hall last week. Owing, however, to the great demands upon our space this week we can only give the names of the chief competitors. The exhibits were numerous and generally of good quality, but the weather proved unfavourable, thus affecting the receipts considerably. The principal prizes were won by the following:—Messrs. E. Martin, Elvey, Woodcock, Fairweather, E. Dines, A. Sargeant, Noble, Kennett, Hyde, Hardimans, Ewell, Hawkins, and Brooks.

BRISTOL.—NOVEMBER 16TH AND 17TH.

There are few older kindred societies than the above, and probably none possesses more apparent vitality. Much of this is due to the efforts of the energetic and courteous Hon. Sec., Mr. G. Webley, and his working Committee, who materially contribute to the success of the many meetings, and they are to be congratulated upon the fact of the nineteenth Exhibition being superior to any that have preceded it.

Specimen Chrysanthemum plants were shown in much greater numbers than usual, and in some instances meritorious collections were unplaced. This was notably the case in the class for six large-flowered varieties, in which there were six competitors. Here Mr. Bradner, as on several previous occasions, proved invincible, his specimens of White Globe, Mrs. Dixon, Prince of Wales, Alma, Barbara, and Mr. Corbay being from 3 to 4 feet through, and remarkably well flowered throughout. Mr. E. T. Hill, gardener to T. Pease, Esq., was a good second; the third prize going to Mr. W. Lintern, gardener to W. Butler, Esq. Mr. Bradner was also successful with three specimens large-flowered, six and four Pompons; Mr. Lintern, Mr. E. S. Cole, gardener to W. Pethick, Esq., and Mr. E. T. Hill, gardener to J. Pease, Esq., securing the remaining awards with good specimens. The best pyramid large-flowered variety, a creditable example of Venus, was staged by Mr. H. Smith, gardener to A. Shipley, Esq.; Mr. Hill following with Mrs. Rundle in good condition. Flat-trained specimens were well shown by Messrs. Bradner, Hill, and Smith, the varieties in this class consisting principally of the Rundle family; and the same varieties figured largely as standards in competition for special prizes offered by W. E. George, Esq., where Mr. Bradner again took the lead, being closely followed by Mr. Rye, gardener to J. Derham, Esq.

The schedule comprehended classes for a great variety of plants in pots, all of which were well filled, but our limited space forbids as full a report as we should wish to give of them. Fine-foliage plants were remarkably healthy and good, notably the specimens of Cycas revoluta, Croton Weismannii, Dieffenbachia Bowmannii, and Latania borbonica staged by Mr. Rye, and somewhat similar varieties were shown by Mr. T. Bush. Mr. J. Stevens also staged creditably in these classes. Mr. Bannister had the finest Ferns, among which were seedling Gymnogrammas, Adiantum trapeziforme, and A. farleyense. Mr. Rye was a good second. Table plants were shown in good numbers, and comprised many elegant Palms, Crotons, Dracenas, and Pandanus. Mr. W. K. Wait, Mr. Budgett, and Mr. G. F. Prideaux secured the awards in the order named. Berried plants were also creditably shown, and included Capsicums Little Pet and Princess of Wales, Solanums, and Aucubas. Messrs. Prideaux, W. Lintern, and S. Budgett were the successful exhibitors. Poinsettias were shown extensively and well, but gave evidence of being grown in a very high temperature. Mr. W. Cooper secured the first prize, and Mr. Lintern

the second. Primulas were also particularly good, and here the prize-winners were Messrs. Lintern, Bodham Castle, and C. Taggett. Bouvardias were well shown by Messrs. W. Rye and S. Budgett, and Zonal Pelargoniums by Mr. C. Taggett. Two groups were staged on a space 10 feet by 4 feet, Mr. Rye securing the premier award for a bright and informal arrangement, in which well-flowered Calanthes, Cypripediums, the beautiful and highly scented Oncidium varicosum, Bouvardias, Gesnerias, Begonias, and Epiphyllums were freely included.

Cut blooms of Chrysanthemums were both extensively and well shown. The stand of twenty-four blooms of large-flowered varieties which gained Mr. T. Hobbs the premier award, and which carried with it the Banksian silver medal of the Royal Horticultural Society, was remarkably good, every bloom being in excellent condition. The varieties were Golden Empress, Prince of Wales, Empress of India, Prince Alfred, Hero of Stoke Newington, Lady St. Clair, Venus, Mrs. Cunningham, Princess of Teck, Mrs. G. Glenny, and General Bainbridge. Messrs. Garaway & Co., Durdham Downs Nursery, Clifton, took second honours with a stand weak only in one or two cases, while Mr. J. Baylis was a most creditable third. For twelve blooms Mr. E. S. Cole was placed first, his most noteworthy varieties being Empress of India and Golden Empress of India. Mr. J. Waite and Mr. W. Fox, gardener to Mrs. Hurle, were worthily awarded the remaining prizes. Mr. T. Hobbs staged the best six, these including fine blooms of Mrs. Heale and Beverley; Messrs. Baylis and E. S. Cole also staging good blooms. The best twelve Anemone-flowered were staged by the Messrs. Garaway, and comprised excellent examples of Empress, Lady Margaret, Madame Clos, George Sands, Acquisition, Prince of Anemones, and Gluck. Mr. J. Baylis and Mr. Hobbs took the remaining prizes. Messrs. Garaway also secured the premier award for twelve blooms of Japanese varieties, and probably a better stand was never seen. The sorts were Fair Maid of Guernsey, Sarnia, Madame Berthier Rendatler, Mons. Ardenne, Baronne de Prailly, Criterion, Thunberg, Apollo, Agrément de la Nature, Bouquet Fait, and Mons. Delaux. Vases of cut flowers were well shown by Messrs. E. S. Cole, T. Meakin, and J. H. Virgo. Vases of outdoor autumn foliage and berries—and very beautiful all of them, placed and unplaced, were—by Messrs. J. H. Virgo and E. S. Cole. Bouquets for the hands by Mrs. M. Cole and Mrs. F. E. Stevens, and in another class by Messrs. E. C. Cole and R. H. Symes, the prizes being awarded in the order named in each instance.

Hardy fruits were not shown in such large quantities as usual, but the Grapes were in marked advance both as regards quality and quantity. The premier prize collection of six varieties was staged by Mr. Nash, gardener to the Duke of Beaufort, and consisted of high-class examples of Black Alicante and Muscat of Alexandria Grapes, East-nor Castle Melon, very fine Pitmaston Duchess Pears, Ribston Pippin Apples, and Medlars. Mr. Bannister, gardener to H. St. Vincent Ames, Esq., was a very creditable second, the third prize being worthily awarded to Mr. W. Sweeting. Mr. G. Gibson, gardener to Mrs. G. Miller, staged the best Black Hamburg Grapes, the second prize going to Mr. W. Cope. There were several excellent stands of Muscat of Alexandria, but Mr. Nash's very fine examples easily secured the premier award, the second prize worthily going to Mr. Gibson, and the third to Mr. E. Trotman, gardener to H. A. Mills, Esq., and an extra prize was awarded to Mr. Rye. In the class for any black variety Mr. Chaffin, Bath, a distinguished amateur, had the pleasure of defeating several well-known professional growers, his examples of Meredith's Alicante being perfect in every respect. Mr. Nash and Mr. W. K. Wait took the remaining prizes also with Black Alicante. Mr. Nash again took the lead with four bunches in not less than two varieties with somewhat faulty Muscat of Alexandria and very fine Black Alicante; Mr. Chaffin followed with highly coloured fair-sized bunches of Meredith's Alicante and Gros Colman, while Mr. Gibson took third place with Mrs. Pince's Muscat and Muscat of Alexandria; this stand, in our estimation, being the best of the three. Seven other lots were shown, many of which were of more than average merit. Mr. W. Rye took the lead with six varieties of Pears, these consisting of clear fair-sized fruits of Chaumontel, Beurré Diel, Conseiller de la Cour, Duchesse d'Angoulême, Doyenné du Comice, and Beurré d'Anjou. Mr. A. T. Hall took the second prize, and Mr. Bannister the third. Mr. Rye was also first with four varieties, being followed by Messrs. Bannister and W. Lintern. The best six varieties of dessert Apples were shown by Mr. Bannister, these consisting of Claygate Pearmain, Kentish Pippin, Scarlet Pearmain, King of Pippins, Worcester Pearmain, and Blenheim Pippin. Mr. A. T. Hall and Mr. W. Hunt took the remaining prizes. Mr. Avery secured the first prize for a single dish with Ribston Pippin, Mr. Hill following with Blenheim Orange. Culinary Apples were very fine, notably the premier prize six varieties, staged by Mr. E. T. Hill, these consisting of Maid of Wilts, Kentish Pippin, Nelson's Glory, Reinette du Canada, English Codlin, and Tankard. Mr. Goddard, gardener to R. Symes, Esq., was a close second, and Mr. J. Milliner a good third. In a good class Mr. T. Bush took the lead for any culinary variety with very fine examples of Bush Seedling, Mr. H. Hockey following with Nelson's Glory.

Special prizes were offered by the Hon. Secretary for a collection of vegetables, and to the first prize was added the Banksian bronze medal of the Royal Horticultural Society. Several creditable collections were staged, but the Judges experienced no difficulty in awarding the first prize to Mr. Bannister. His collection comprised excel-

lent examples of Imported Sprouts, Major Clarke's Celery, Veitch's Autumn Broccoli, Banbury Onions, Lapstone Kidney Potatoes, Orange-field Tomatoes, London Flag Leeks, Veitch's Red Globe Turnips, and Dell's Crimson Beet. To Mr. Budgett was awarded the second prize, and Mr. Pease the third.

Many of the foregoing prizes were specially offered by the leading inhabitants and nurserymen of the district, and it must be very encouraging to these liberal patrons to find they were so well competed for.

MANCHESTER.—NOVEMBER 21ST.

Manchester is noted for the magnitude and excellence of horticultural exhibitions. The spring shows held under the auspices of the Royal Botanical Society of the North are invariably successful, while the summer exhibitions have won world-wide fame. Less provision is made for the autumn shows; but there is no difficulty in filling the grand room of the Town Hall effectively, and packing it to repletion with visitors.

The schedule only contained eight classes for Chrysanthemums—five for plants and three for cut blooms. The naturally grown and trained specimens of the incurved varieties were the feature of the Show. Finer cultivation was perhaps seldom seen than in the class for nine plants. The stems were dwarf and strong, ranging from 2 to 3½ feet high; foliage large, leathery, of a dark bronzy hue indicative of rude health, and reaching to the soil and the blooms—five or six on each plant of exhibition quality. The first prize in this excellent class was won by Mr. Thos. Cash, gardener to C. S. Agnew, Esq., Prestwick, his plants containing better blooms than any in the stands. Mr. Fletcher, gardener to W. Scott, Esq., Higher Broughton, and Mr. Taylor, gardener to E. G. Potter, Esq., Rusholme, followed somewhat closely, and secured the remaining prizes in this excellent class. In the class for four plants of the same character J. E. Best, Esq., Withington, and O. Schneider, Esq., Fallowfield, followed Mr. Agnew's, all the plants being good. None of the stems were bent, and dwarfness of many of the plants in the above classes was remarkable—most creditable to the cultivators. Pompons were very far from being of equal merit, the plants being thin, too many sticks visible, and the tying had been done too late. George Cooper, Esq., Timperley Hall; T. Dickens, Esq., Higher Broughton; and J. Slatter, Esq., Stand, were awarded the prizes in the order named. John Allen, Esq., Altrincham, secured the chief prize for six Japanese plants, similar in character to the incurved varieties—dwarf and with large blooms. The others in the class were too tall.

For twenty-four cut blooms Messrs. Allen, Cooper, and Kenworthy were the successful exhibitors, the blooms being large enough, but too flat, yet broad in the petal and fresh. Mr. Allen was first also with twelve blooms, and Mr. Moorman of Coombe Bank, Kingston-on-Thames, second—neater, fuller, better-formed examples, but not large enough for the first position. For stands of twenty-four mixed blooms Messrs. Allen and Cooper were equal firsts, and Mr. Moorman second. A great number of blooms were exhibited in the above classes, but the majority were too flat and thin, the size of not a few being also further apparently diminished by the disproportionate paper collars; in fact several stands were spoiled by the display of paper.

Mr. Allen staged very good Primulas, 2 feet in diameter, but most of the other plants appeared to have been much shaken in transit. Roman Hyacinths from Messrs. Potter, Dickens, and Jones & Son, Shrewsbury, were excellent. Bouquets were good, Messrs. Jones and Son being in the position with which they are so familiar—first, securing also the chief prize for a vase of flowers. Table plants were very good indeed, the prizes falling to Messrs. Schneider, Potter, and R. A. Farrington, Esq., Wigan. The plants arranged down the central table contributed greatly to the effect of the Exhibition.

Messrs. Dickson, Brown, & Tait staged an effective group of plants, in which Calanthes were splendid, and were granted a first-class cultural commendation. Similar awards were made to Mr. Leech for floriferous plants of his new Dendrobium Leechianum of the L. Ainsworthi type, and very beautiful; also for Davallia fijiensis plumosa with fronds 18 inches across. Several other groups were arranged, including a brilliant lot of cut Zonal Pelargoniums and Salvias from Messrs. Cannell of Swanley; fine Chrysanthemum blooms from Messrs. Dickson & Robinson; plants and flowers from Messrs. Clibran & Son, with a good group also from Messrs. Hookey of Stockport. Mr. Pettigrew had supers of excellent honey; and Mr. B. S. Williams changed his mode of showing by staging Onions weighing 4 lbs. each. This is necessarily a mere skeleton account of a really attractive and successful show, excellently managed by Mr. Bruce Findlay.

SINGLE DAHLIAS AND THE FIRST FROST.—Within the past month the temperature has frequently been very close to the freezing point (32° Fahr.) in this locality, but until the 11th of November, with 5° of frost, my single Dahlias constantly afforded blooms for cutting purposes since last July, a month after I had obtained some of them from Messrs. Cannell, Swanley, and some other varieties from Messrs. Kelway, Langport—that is, four months. Now if I were to select the most floriferous, combined with the most beautiful, of the twenty varieties I had, I would decidedly put Paragon first, and Avalanche or White Queen next. I have seen Mr. Ware's five acres and numbers elsewhere, and have raised a few good crimsons and magenta seed-

lings myself; but what is wanted is that the numberless seedlings should undergo a careful selection so as to get the really good neat flowers.—W. J. M., Clonmel.



HARDY FRUIT GARDEN.

WHEREVER fruit trees make a quantity of wood and do not form fruit buds, the wood not ripening satisfactorily, an examination of the roots will be advisable, and should be attended to whilst the weather is favourable, as the soil will not yet be so cold as at a more advanced period of the season. Careful root-pruning and the raising of the roots when too deep will generally render over-luxuriant trees fruitful. Weakly trees may frequently be restored to health by having their roots brought nearer the surface, and encouraged by an application of turfy loam enriched with about a fifth of well-decayed manure, in which the recently disturbed roots should be arranged. If the soil be of a tenacious or heavy nature a portion of the road scrapings, lime rubbish, or other gritty material may be added with advantage.

Bush, pyramid, espalier, and other forms of fruit trees in a limited space should, when growing too freely, be attended to in root-pruning, which, whilst lessening the necessity for summer-pruning, conduces to the fertility of the trees. Such as do not require attention in the respect above indicated should have the loose surface soil scraped off some distance from the stem all around according to the size of the trees, supplying some fresh rich material, to which has been added about a tenth of charred refuse.

Planting young fruit trees should be proceeded with as opportunity offers, it not being advisable to plant when the soil is very wet; and although most hardy fruits can be produced with success on most soils, yet the better the soil and climate the finer will be the fruit. But however good the soil, it will generally be necessary that it should undergo some preparation before the trees are planted. Draining in most cases will be necessary, and in heavy wet soil is absolutely essential. In the latter case a portion of light soil, road scrapings, old mortar rubbish, and charred refuse may be employed with great benefit, and the trees in such soil may be advantageously planted upon small hillocks slightly raised above the level of the surrounding ground. With soil of a light porous character upon a gravelly or limestone subsoil an opposite practice will need to be pursued; well-pulverised clay or strong loam should be incorporated with the original soil.

In the selecting of fruit trees, especially of Apples and Pears, it is of the greatest importance to plant those which are known to succeed well in the locality, as many varieties are excellent in all respects in one locality, whilst in another they are found to be very unsatisfactory.

A severe winter not unfrequently proves injurious to unprotected Fig trees against walls. The trees should be either unfastened from the walls, the branches tied closely in bundles, which should be encased in clean dry straw or fern kept together by mats, or the trees may be allowed to remain on the wall, the surface of which should be lightly thatched with dry bracken, straw, mats, or similar material, and the border from the stem outwards should be well mulched with partially decayed manure. Mulch also between the rows of Strawberries, employing partially decayed manure, which will be sufficiently further decomposed to allow of being pointed-in in spring. Any tender varieties, such as British Queen, may be mulched with littery manure.

FRUIT HOUSES.

Cherry House.—Pruning full-grown Cherry trees, which have had proper attention in regard to stopping the shoots during growth, will now be confined to cutting back the shoots of the current year to about an inch from the base or starting point, and the removal of decayed spurs. Young trees in course of formation will need the

central shoot or shoots cut back as necessary to originate growths for regularly filling up the allotted space. The fan mode of training is the best where the trees have a good run of trellis or wall, as by this method means are afforded of filling up vacancies occasioned by gumming, to which Cherry trees under any conditions are peculiarly liable. Except for the purpose indicated above, or where the limits of the trellis necessitates its being done, it is not advisable to shorten the terminal shoots. This should be attended to at once, and a complete cleansing of the house effected. The trees also should be washed with soap and water (8 ozs. softsoap to a gallon of water) and afterwards with an insecticide. The light must also be replaced, but the house fully ventilated until the time arrives for starting the trees.

Figs.—Pruning Fig trees requires some experience and no little judgment, local circumstances entirely governing the mode of cultivation, and consequently that of pruning. In the case of trees grown in pots or having the roots restricted to small borders, and consequently not growing vigorously, very little pruning will be necessary, provided during the season of growth proper attention has been given to stopping and thinning out the shoots. Trees, however, that have not the roots so restricted and have a good run of trellis, the object being to secure a series of young growths over the whole surface of the trellis, from which the crop of Figs is to be chiefly obtained, the pruning requires to be severe at the top part of the trees. The shoots which have attained the limit of the trellis should be shortened back to where the succeeding shoots start, in order that the latter may occupy the place of the former in the ensuing season. Elongated spurs should be removed, reserving the short-jointed and fruitful, but be careful not to overcrowd. After pruning loosen the trees from the trellis and thoroughly cleanse the house, washing or painting the woodwork and trellis, limewashing the walls. The trees should be dressed with an insecticide after washing them with tepid soap and water. Train and tie the trees regularly, allowing plenty of space in the ties. Point over the surface of the borders without injuring the roots, remove the loose material, and apply a top-dressing of partially decayed manure 3 or 4 inches thick. The house should be fully ventilated, except during frost.

GREENHOUSE.

Liliums.—If these are not yet potted no time should be lost in completing the work before they begin rooting; *L. longiflorum* roots early, and cannot endure having the soil too dry. This is one of the most useful of Lilies for early flowering, as it bears gentle forcing, and, being grown in small pots, is fine for decoration. *Lilium auratum* is also an early flowerer and roots early. The early-flowered plants will now be pushing fresh fibres, and if this is the case they should not on any account be disturbed; indeed, unless the soil be not occupied with roots, having become a close mass, it is not necessary, or even advisable, to repot Liliums annually, but if the pots are too small the plants should be transferred to larger pots with the ball entire, or the sides merely loosened and the crocks removed; whilst those not needing larger pots should merely have the surface soil removed, adding fresh, after seeing that the drainage is efficient. Those that have the soil sodden should have every particle of soil removed and be placed in fresh compost, placing a little silver sand under and around the bulbs. Turfy loam, with a fifth of old decayed manure, a sixth of charcoal broken small, and a little sand, will grow Liliums well. Although Liliums do not like a very wet soil, it ought not to become very dry even when they are at rest, but should be kept moist. If the pots are plunged in ashes in a pit where they will be safe from frost they will need but little attention during the winter.

THE BEE-KEEPER.

BEE PLANTS.

WE were somewhat surprised on glancing over the pages of the "American Bee Journal" of the 18th ultimo at finding a paragraph under the above heading from an English correspondent, Mr.

E. H. Bellairs of Christchurch, Hants, to the following effect:—"I have read your instructive article on Sweet Clover, and as it is unknown here, and not mentioned in any of our seedsmen's catalogues, I will take it as a great favour if you will send me a small packet of seed to experiment with in our climate." If Mr. Bellairs had consulted us we should have replied that the plant he was in search of, so far from being unknown in England, was remarkably well known, we having cultivated it for a period of thirty years solely for our bees, and having repeatedly seen it growing in cottage gardens in various parts of this country.

The term "Sweet Clover," like much other American nomenclature, is simply a misnomer, since all Clovers (*Trifoliums*) are sweet-scented, and preferred by the bees to any other plant grown. The proper name of this plant is *Melilotus leucantha*, in plain English White-flowered Melilot, a biennial which grows freely in any soil to the height of 6 feet, with very branching stems and large clusters of sweet-scented white flowers.

The best time for sowing is the early autumn, and generally speaking it does not bloom until the second year, flowering profusely through July and August, when it forms seed and dies. It may, however, be sown at the spring time, and succeeds well. Its one great disadvantage is that it is useless to the farmer, even as bedding for his cattle, after seeding. We have known it harvested as hay, though doubtless if well secured before blooming it might form a rough kind of Clover hay. It is of the same class as the *Melilotus officinalis*, or yellow Melilot, so common in many parts of the country, although it has been described as a distinct species—the result of cultivation. The yellow kind is an annual, grows to the height of 2 or 3 feet only, and is cultivated as food for cattle, growing in thickets, hedges, and borders of fields. When dried it gives a strong scent of new-mown hay.

From our own observation the *Melilotus leucantha* is preferred by the bees to any known plant, and is unequalled as regards the quantity and quality of the nectar secreted, and, which is even of more importance, yields its precious nectar in all seasons. We have never found any difficulty in procuring the seed from our principal seedsmen when giving its proper name, and we strongly advise our bee-keeping readers, if not already cultivating it, to give it a trial.

HIVES.

(Continued from page 415.)

AT the bottom of page 414 of the Journal for November 2nd read "When made the frame should hang clear of the floor-board and sides of the hive by a quarter of an inch."

We will now proceed to describe the other parts of the hive not considered in our last letter. The roof is constructed as follows: For the sides of the roof two pieces of three-quarter-inch wood, each $23\frac{3}{4}$ inches long, and cut like fig. 80. For the front and back two pieces $18\frac{1}{4}$ inches long, the front board to be 9 or

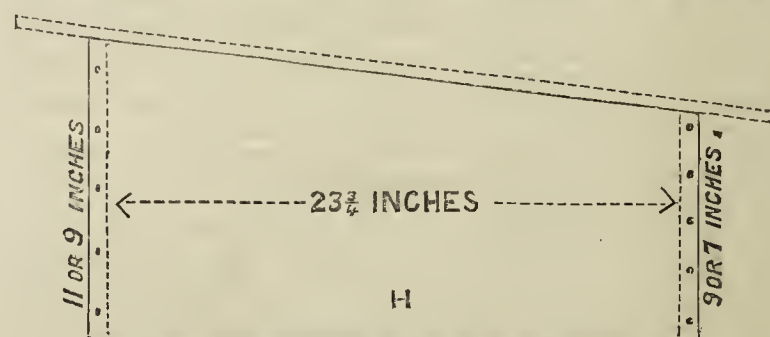


Fig. 80.—Side of Roof.

11 inches broad (A, fig. 81), and the back one 7 or 9 inches broad (B, fig. 82), according to the width of stuff one has in use, which would be either 11 inches or 9 inches broad. The lesser height will allow ample space for two tiers of sections. In the centre of the two last-named pieces (which are to form the front and back of the roof) and near the top cut three holes (C, fig. 81) about an inch in diameter with a centrebit, or if this cannot be obtained a keyhole saw will answer the purpose. On the inside over these holes tack strips of perforated zinc. These holes are to give free ventilation to the hive. All noxious vapours and dampness will rise through the quilt to the inside of the roof, and will pass off through these openings. It must be impressed on those making bar-frame hives for the first time that it is better to err on the side of too much ventilation through the roof of the hive than in giving too little. These four pieces may now be nailed together quite square. It is as well to place them over the hive on the bearers

R, R (figs. 67 and 68, page 414), when putting them together so as to nail them true. It will be seen that a quarter of an inch play is given to the roof—that is, one-eighth on each of the four sides, so that it shall not be likely to stick tight at any time. By reference to fig. 81 it will be seen that notches *n, n*, are cut in the front and back of the roof; these should fit over strong screws screwed into the hive proper just over the roof rests (R, R, figs. 67 and 68) so as to correspond with the notches in the roof. These screws will keep the roof in proper position. It is also advisable to secure the roof to the hive proper by putting hooks and small staples to the sides (H, fig. 80). Those possessing tools, or who can obtain the use of a plough plane or even gouge chisel, should also run a groove along the bottom edges of the roof. This will in a great measure prevent rain being forced between the roof and the hive during high winds. The half-inch overlap will generally prevent this occurring, but it is as well to be doubly secure. It will be seen that the inner top edge of the front and the outer top edge of the back of the roof frame will have to be bevelled off (D, D, figs. 81 and 82), then cut out the wood for the cover. Two pieces of 11-inch hoard 30 inches long answer for the roof cover, although there is hardly sufficient overlap for the sides; but we make this do in order to avoid having two seams in the cover. If 11-inch pine is not obtainable and other wood to hand, then we would have two pieces 8 inches wide and one piece between them 9 inches in width. These should be nailed on to the roof frame so as to overlap equally front and back and both sides, taking care to use well-seasoned wood, and to keep it as close as possible together where the boards join. Strips of quarter-inch wood 2 inches wide should be well bradded to the roof over the joints, driving in the brads at various angles in order to get better hold. If carefully done when well painted there will be not a chance of a leak. The whole of the outside of the hive and roof should receive at least two coats of good oil paint. A stone colour is as nice as any. We like a rather dark stone colour which does not show dust and stains readily.

The quilt is now the only thing we have left to mention in regard to the hive itself. A piece of ticking next over the frames is one of the best materials to employ. Hair cloth is perhaps better, but dearer. We have over several hives used a coarse kind of screen canvas, and this answers the purpose very well and is cheap. We do not put a rough material such as carpet or flannel next the bees, as they seem to object to anything of a woolly nature, and bite it to pieces, trying to make it smooth. A piece should be cut partly out of the middle of the various coverings, three sides of a square being cut through with scissors, leaving it so that it can be folded back like a trap door. Over this first cover of ticking, hair cloth, or canvas should be placed two or three layers of flannel, or a couple of pieces of clean old drugget or carpet, having pieces partly cut out to correspond with the hole in the first layer. This arrangement is for feeding when it is thought best to feed from the top. Instead of this arrangement a good serviceable quilt can be made

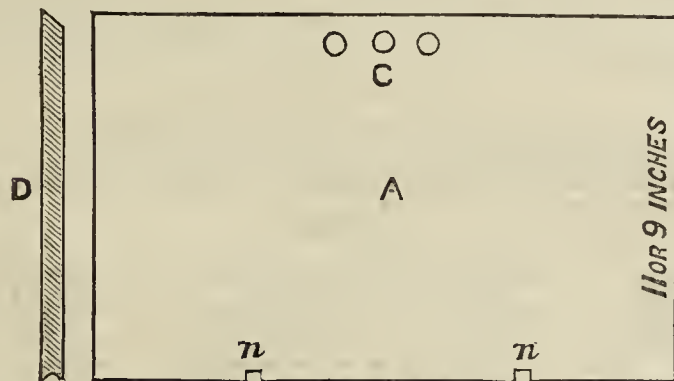


Fig. 81.—A, Front. D, Section of front.

in various ways by stuffing a case made just the size of the space over the top bars with any suitable material, such as chaff, wool, cork chips, &c. Care should be taken in this case not to use an impervious fabric, or we shall defeat our own aim to make the bees snug and warm by keeping them damp and thus causing cold and disease. In making the quilt, whether a stuffed cushion or layers of warm stuff, it must be cut accurately to fit above the frames. It will be seen by reference to figs. 67 and 68 that we prefer to leave a quarter of an inch drop all round from the level of the hive sides to the top of the frame bars. Into this receptacle the quilt should fit closely, so as to prevent escape of air suddenly, and thus to secure an equable temperature. Some hives are made so that the quilt simply rests on the frame bars and sides of hive. It is liable to get puckered up at places, and to allow too readily the escape of heat. By being made the least bit too large it can by

our method be fitted to a nicety all round the sides of the top of the hive.

We will now say a few words concerning the management of the hive. Fig. 68 shows the hive arrangement for winter. Of course the feeder (J) is not always in its place. So much importance must be attached to the proper use of food given artificially to bees that the whole subject shall be fully entered upon on a future occasion. It is only necessary now to point out the plan of feeding portrayed in fig. 68. The dummy D has, as formerly explained, a slit cut out from the centre of its lower edge a quarter of an inch high. When the number of combs is lessened for the winter arrangement this dummy is placed in the position indicated. The bees could now run into the space *s*; their movements are, however, curtailed by the tunnel T T. This is made by tacking a piece of zinc to two strips of wood, each the same length as the width of the space between the dummy and the back of

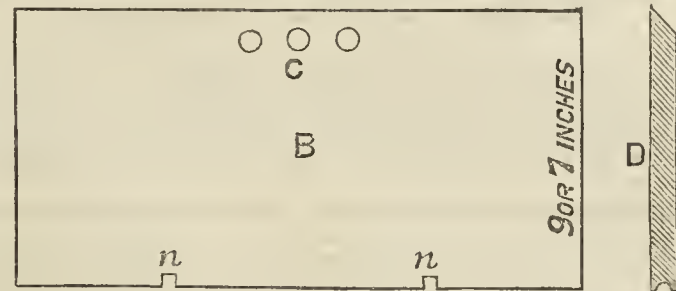


Fig. 82.—B, Back. D, Section of back.

the hive; three or four holes are punctured in the centre of the zinc. During the winter the whole space may be filled up with clean dry chaff; we use oat chaff, as being soft and light, and not liable to mat together. This chaff is easily removed when the space is required for feeding purposes in early spring. A similar arrangement is employed in the front space between the dummy and the front of the hive. Here a tunnel is made by which the bees enter from the outside; a piece of perforated zinc is here used, which assists in ventilation. This front space is then packed with chaff. Mr. Cheshire advises the use of cork chips where they can be had; we have not yet been able to obtain them, but find good chaff answers the purpose. We have this winter used a frame 2 inches deep, made of wood, with canvas bottom, made to fit accurately over the frame-bars. This filled with dry clean chaff takes the place of the quilt, and stands over the one layer of ticking or screen canvas.

Before closing this description of our hives we would give an idea of the cost incurred in making each one. The estimation is for the very best well-seasoned yellow pine, free from knots and flaws, planed at a saw-mill both edges and one side. The bars and side pieces for the frames can be also obtained ready planed in similar manner in suitable lengths for cutting up as required without waste. For the top bars the strips should be seven-eighths of an inch broad when planed. The frames can be made for 1d. each. We would here state that we employ nothing but French wire nails in putting together our hives and frames. They hold well when wetted at the time of using, and should, as far as possible, be driven in at various angles. When nailing together the frames the top bar should at one end be only nailed on on one side of the saw-scarf, piercing a hole ready for the second three-quarter-inch nail when the foundation sheet is put in just before use. The material required for one hive is as follows:—

	s.	d.
22 feet best yellow pine, $\frac{3}{4}$ by 11, at $3\frac{1}{2}$ d.	5	11½
Floor-board extra	0	9
10 frames at 1d.	0	10
Nails and quilt	0	6
Paint.	0	6
	8	6½

This cost can of course be greatly reduced by the employment of more common wood, which can be purchased at one-third less cost, but more likely to split when being put together. The cost can be reduced still more by the employment of the wood from boxes purchased from grocers or other firms. When comparing the cost of such a hive as we have endeavoured to describe with that of a skep ever so well made, it must be taken into consideration that the bar-and-frame hive, with an additional outlay for a coat of paint every year, would last a lifetime, whereas the straw hive would not last more than a few seasons. It would be therefore much cheaper in the end for a cottager to invest in such a hive as we advocate than to be constantly buying skeps. To every intelligent cottage bee-keeper we would therefore say, Make such a hive and give it a fair trial side by side with the

straw skep, and we are sure that after a little experience gained in managing the bees on the bar-frame system, so much more pleasure will be given by the moveable-comb system than by the fixed unget-at-able skep, that the latter will soon disappear from the garden.—P. H. P.

TRADE CATALOGUE RECEIVED.

H. & F. Sharpe, Wisbech, Cambridgeshire.—*List of Potatoes.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Book (W. Cheshire).—The work you refer to is reliable and satisfactory, especially the later edition revised by Dr. Masters, which is thoroughly modernised.

Culture of Fruit Trees (E. D. Carlisle).—We doubt if you can find information on the culture and pruning of fruit trees more sound and concisely rendered than in our small manual, "Fruit Gardening for the Many," which can be had post free for 4½d. in stamps. The instructions for pruning apply almost equally to trees in the orchard house; but on this method of culture Rivers' work, "The Orchard House and Miniature Fruit Gardening," published by Longmans, is the best guide.

Lichens on Wall Trees (J. W. Hall).—The lichen which is infesting your trees is usually most prevalent in districts where the soil is not well drained and the situation sheltered by trees or hills, which prevent the free dispersion of atmospheric moisture. We have known it eradicated by removing the trees from the walls and washing the masonry, also the trees, with lime toned with soot to subdue the white colour, which is to some persons objectionable. That excessive moisture contributes to the increase of the epiphyte is apparent from the fact that it is more abundant on the west than the east aspect of the wall. The bulk of the rain coming from the west causes that side of the wall to be much the wetter.

Selection of Pears (G. P., Hants).—The following varieties may suit you, being of good quality, hardy, and fruitful. For planting against the wall with a west aspect:—Glou Morceau, Beurré Superfin, Josephine de Malines, Bergamot d'Espérance, Beurré d'Arenberg, Durondeau, Nonville Fulvie, Emile d'Heyst, Olivier de Serres, Marie Benoist, Marie Guise, Marie Louise, and Winter Nelis. They must be on the Quince stock, except the last named, which succeeds best on the Pear. Ten feet apart is too short a distance for the Pear stock. It is optional whether you have the pyramids on the Pear or Quince stock. The following succeed as pyramids:—Marie Louise, Beurré d'Amanlis, Pitmaston Duchesse, Beurré Hardy, Beurré Diel, Doyenné du Comice, Baronne de Mello, Comte de Lamy, Louise Bonne of Jersey, Madame Treyve, Beurré Giffard, and Williams' Bon Chrétien.

Uses of Sunflowers (J. Clark).—If you had sent us a copy of the article to which you refer we should have been better able to determine whether the "claims have been exaggerated." Some of the uses of this now popular flower may be enumerated. In France the leaves are used as forage for cattle, who are said to eat them with great relish and avidity. The stalks make an excellent fuel, and yield a large quantity of potash after they are burned; or, if not wanted for that purpose, the ashes may be used as manure by sowing it over the land or mixing it in the manure heap. In Portugal the seeds are used to make a wholesome and nutritious bread, and, when roasted, they form an excellent substitute for coffee; in some parts of the continent a kind of bouilli is made of them, which serves as food for infants. They also yield by expression a fixed oil, little if at all inferior to olive oil, which is used in some parts of Europe both for burning in lamps and for other domestic purposes to which olive oil is applied, and for making soups. As food for poultry they have been found to be very nutritious. One acre will produce 50 bushels of seed, yielding 50 gallons of oil and about 1500 lbs. of oilcake, and the stems will yield about 10 per cent. of potash. The pith of the Sunflower has been recommended by M. Perey for the preparation of moxa, for which it is well adapted by the nitre it contains enabling it to burn without being blown upon.

Planting Vines (W. J.).—Your proposed method of preparing the Vines in turves is good. The precise time for planting will depend on the temperature that you can easily maintain in the house, as, when growth fairly commences, the young Vines must receive no check, but must have a warm genial temperature constantly and a very light position. If these conditions can be insured you may start the eyes in January. We should only have the border 3 feet wide the first year, the front consisting of a wall of turves, additions being afterwards made yearly. Relative to analysing the soil, that is a question for you to determine; but if you have it done, and afterwards grow Grapes as well as the two authorities you name who did not adopt such a scientific test, you may be satisfied, and you cannot err by following the instructions of either of them. There is no doubt a competent analyst in connection with the Durham University. Dr. Voelcker of the Royal Agricultural College, Cirencester, also analyses soils. The cost varies with the nature of the analysis, and can be obtained from chemists who undertake work of this nature. You must remember, however,

that the best mixture that can be compounded will not avail to produce good Grapes if other details of management are not correctly carried out. Some gardeners can grow far better Grapes without any prepared border than others can with the most elaborate mixtures and expensive arrangements.

Origanum Sipyleum (W. T. G. W.).—This is the name of your plant that is known in some districts by the popular name of the Hop Plant. It is of easy culture, requiring ordinary loamy soil. It is a native of the Levant, and is only hardy in sheltered places in the south of England, and is generally best wintered in a frame, greenhouse, or window of a dwelling. Being of a stubby habit it does not die down; the parts bearing the inflorescence of course die and should be cut off to where the growth is healthy. It may be planted out or plunged in the garden during the summer, and taken in on the approach of cold weather in the autumn. It is one of the Marjorams, most of which are more or less fragrant, hence some of the species are used as culinary herbs.

Forcing Asparagus (W. Brown, Herts).—When the roots are taken to a hotbed the bottom heat should never be above from 75° to 80°; if there is the least danger of the heat being more the roots should merely be left on the surface, and be slightly covered after watering, and then 2 or 3 inches more covering should be put on as the heat declines. The details of these matters are of primary importance to the inexperienced. For an early Asparagus bed we seldom use a hotbed all of fresh materials, but select an old hotbed which has been used for Cucumbers or Melons. The soil is taken off, also the most decayed part of the dung; that which is not quite rotten is stirred, mixed with hot tree leaves or other fermenting material, and 2 inches or so of the dung placed on the surface. On this are packed the numerous spreading roots, taking care not to let them get dry, putting in the first row as close as it is possible to do without the buds touching. A little leaf soil and sandy loam is scattered on the long roots, then the next row of roots is placed over them with the buds on a level with the first row. In this way a large number of roots can be packed in the space of a single light of 6 feet by 4. When all the roots are packed in, a sprinkling of light soil is thrown over them, and water is given at a temperature of about 65°, so that the fibres of the long roots may have no check. When sure that there is the proper heat (50° to 60°) add a couple of inches or so of covering, for, where green shoots are preferred, covering for blanching is quite unnecessary.

Pruning Vines (W. R. S.).—You may prune your Vines at once, and as they have been so much infested with thrips wash the rods thoroughly with a strong solution of Gishurst or soft soap; a strength of 6 to 8 ozs. of soap to a gallon of water will not be too much. Then turn the Vines outside, protecting them with hay only during severe weather. A few degrees of frost will not injure them. The woodwork of the house should also be thoroughly washed with strong soapy water, and the glass with clear water previously to filling it with plants, the walls also being cleansed and limewashed if that is suitable. A few days of labour devoted to that work will be well and profitably applied; indeed if you do not cleanse the house completely now you will next year have the same trouble with thrips that you have recently experienced, and the insects if not checked will ruin your Vines.

Roses in Pots (A Lady).—On page 445 of the last issue of this Journal you will find a thoroughly practical article upon the culture of Roses in pots, which contains all the information you require. If you have not seen that number it can be had from this office post free for 3½d. The Strawberry plants have been treated judiciously, and you can have them transferred from their present position to the houses as required.

Dwarf Kidney Beans (A Subscriber).—Your letter is very indefinite. Do you require plants or Beans? Inquire of some market gardener or greengrocer in your neighbourhood.

Exhibiting Fruits (S. Clarke).—As the wording of the schedule is for "collection of fruit consisting of eighteen kinds, not necessarily their own growth," you would have been justly disqualified for showing a bunch of black and a bunch of white Grapes as two kinds of fruit. Had the schedule mentioned two varieties you would have been right. The framers of schedules ought to be careful in this matter.

Names of Plants (W. T. G. W.).—The plant of which you sent a specimen is *Origanum Sipyleum*. See reply above. (K. L.).—1, *Pteris tremula*; 2, *Pteris umbrosa*; 3, *Pteris serrulata cristata*; 4, *Blechnum brasiliense*; 5, *Doodia aspera*. (M. N.).—1, *Salvia Bethelli*; 2, *Salvia splendens*; 3, *Salvia Pitehieri*; 4, *Adiantum macrophyllum*; 5, *Lomaria gibba*; 6, *Cestrum aurantiacum*; 7, *Gesneria zebrina*.

COVENT GARDEN MARKET.—NOVEMBER 22ND.

LARGE quantities of Grapes are reaching us, keeping prices low, and meeting with a quick sale. Heavy consignments of Nova Scotia Apples to hand, arriving in good condition.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 0 to 7 0	Lemons.....	case	20 0 to 30 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	2 0 3 0
Cherries.....	½ sieve	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	10 0 12 0	Oranges.....	100	6 0 10 0
Currants, Black.....	½ sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen ..	dozen	1 0 2 0
Figs.....	dozen	0 6 1 0	dessert.....	dozen	1 0 2 0
Filberts.....	lb.	0 6 0 0	Pine Apples, English	lb.	2 0 3 0
Cobs.....	100 lb.	45 0 50 0	Raspberries.....	lb.	0 0 0 0
Gooseberries.....	½ sieve	0 0 0 0	Strawberries....	lb.	0 0 0 0
Grapes.....	lb.	1 0 5 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Lettuces.....	score	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mushrooms.....	punnet	1 0 1 6
Beans, Kidney....	100	1 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beet, Red.....	dozen	1 0 2 0	Onions.....	bch.	0 6 0 0
Broccoli.....	bundle	0 9 1 6	Parsley..... doz. bunches	3 0 4 0	
Brussels Sprouts..	½ sieve	1 6 2 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 0 0 0
Capsicums.....	100	1 6 2 0	Potatoes.....	cwt.	6 0 7 0
Carrots.....	bunch	0 4 0 0	Kidney.....	cwt.	6 0 8 0
Cauliflowers.....	dozen	2 0 3 0	Radishes..... doz. bunches	1 0 0 6	
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz. bunches	2 0 4 0		Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 8	Scorzoneria.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	2 6 3 0
Fennel.....	bunch	0 3 0 0	Shallots.....	lb.	0 3 0 4
Garlic.....	lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Tomatoes.....	lb.	0 4 0 8
Leeks.....	bunch	0 3 0 4	Turnips.....	bunch	0 2 0 4

*POULTRY AND PIGEON CHRONICLE.***NEGLECTED PASTURES AND WASTE LANDS.***(Continued from page 467.)*

IN Mr. C. Darwin's work on worms there is given an excellent account of the formation of vegetable mould through the action of worms, and with observations on their habits. He says:—"Worms prepare the ground in an excellent manner for the growth of fibrous-rooted plants and for seedlings of all kinds. They periodically expose the mould to the air and sift it, so that no stones larger than the particles which they can swallow are left in it. They mingle the whole intimately together like a gardener who prepares fine soil for his choicest plants. In this state it is well fitted to retain moisture and to absorb all soluble substances, as well as for the process of nitrification. The bones of dead animals, the harder parts of insects, the shells of land molluscs, leaves, twigs, &c., are before long buried beneath the accumulated castings of worms, and are thus brought in a more or less decayed state within reach of the roots of plants. Worms likewise drag an infinite number of dead leaves and other parts of plants into their burrows, partly for the sake of plugging them up and partly as food. The leaves which are dragged into the burrows as food, after being torn into the finest shreds, partly digested, and saturated with the intestinal and urinary secretions, are commingled with much earth. This earth forms the dark-coloured rich humus which almost everywhere covers the surface of the land with a fairly well-defined layer or mantle. Von Heusen placed two worms in a vessel 18 inches in diameter, which was filled with sand, on which fallen leaves were strewed, and these were soon dragged into their burrows to a depth of 3 inches. After about six weeks an almost uniform layer of sand 4 inches in thickness was converted into humus by having passed through the alimentary canals of these two worms. It is believed by some persons that worm burrows, which often penetrate the ground almost perpendicularly to a depth of 5 or 6 feet, materially aid in its drainage, notwithstanding that the viscid castings are piled over the mouths of the burrows, prevent or check the rain water directly entering them. They allow the air to penetrate deeply into the ground. They also greatly facilitate the downward passage of roots of moderate size, and these will be nourished by the humus with which the burrows are lined. Many seeds owe their germination to having been covered by castings; and others, buried to a considerable depth beneath accumulated castings, lie dormant, until at some future time they are accidentally uncovered and germinate."

These combined scientific and practical statements are of immense value to the farmer in considering the question of forming or renovating pasture lands, for after taking into account that the worms are a factor in the matter, we should endeavour in our management to facilitate their operations, and how to effect this we shall explain further on.

Quotations have already been given from Mr. Darwin's work on worms, and the whole subject is so truthfully displayed by him that we strongly advise the home farmer and gentlemen having landed property, and especially grazing and parklands, to obtain the work. But considering as we do the importance of the subject, we will make a quotation which fitly concludes with a paragraph summing up in a few words the result of nearly half a century's observation and research as follows:—"When we

behold a wide turf-covered expanse we should remember that its smoothness, on which so much of its beauty depends, is mainly due to all the inequalities having been slowly levelled by worms. It is a marvellous reflection that the whole of the superficial mould over any such expanse has passed, and will again pass, every few years through the bodies of worms. The plough is one of the most ancient and most valuable of man's inventions, but long before he existed the land was, in fact, regularly ploughed, and still continues to be thus ploughed, by earthworms. It may be doubted whether there are many other animals which have played so important a part in the history of the world as these lowly-organised creatures."

In our practice connected with the improvement of neglected pastures, which has extended over a period of more than fifty years, we find that during the greater part of that time we have been unconsciously acting in accordance with Mr. Darwin's views—that is to say, our chief object has been to encourage the working of the worms, and we have studiously endeavoured to follow such plans and use such manures as would most conduce to their operations. One of the first experiments we ever tried was the improvement of some strong clay land where the earth had for some years been removed from the surface for tidal embankment purposes. This land had lain for more than twenty years as waste, producing nothing better than *Carex*, commonly called Carnation Grass, black bents, and a few other worthless grasses which neither dairy cows or sheep would eat. It was upon this land that we made our first experiment in order to ascertain the value of couch and the earth adhering to it, laid out on waste land as fast as the carts were filled with it without the labour of rolling or harrowing, to make it fit to burn. The couch in this instance was laid out at the rate of about 18 or 20 tons per acre and spread immediately. This was the means used to induce the earthworms to work on the surface, as we had always noticed how much earthy composts induced them to cast up earth and draw into their burrows any fragments of vegetation with great benefit to the turf, but more especially upon the poorest pastures. This experiment was made the groundwork of our future proceedings in the manuring of grass land, which we found deficient in herbage, for the result being that the couch in the green state as it was, actually proved more beneficial than farmyard manure which we had frequently laid out on poor or neglected pasture land. We found the worms worked incessantly, and drew in every stem and blade of couch in a very short time, and after a second application at the expiration of three years the pasture was wonderfully improved, for the grasses and Clovers indigenous to the soil began to appear, and it is to this day extremely useful dairy pasture, although the late tenant never dressed it at all for a period of nine or ten years.

In another position we had a well-situated park-like pasture, a portion of which (about 4 acres) was extremely wet, being on a subsoil of strong clayey gravel, and it was rendered very inferior grass land in consequence of being greatly encumbered with Rushes of two sorts. The Bunch Rushes which had formed into hassocks were easily got rid of by cutting up with the turf-cutter and burned; but not so the small Rushes, which run under the surface and throw up their stems from every knot in the roots, somewhat like the growth of couch grass. It is impossible to eradicate these entirely without file or pipe, draining the land, breaking up the turf, and resorting to cultivation, in order that the land may be chalked or limed, this being the basis of all successful cultivation on strong soils, whether intended for arable or pasture in the future. These matters determined us upon a course of cultivation, as all other attempts at improvement had failed. We ploughed off the turf rather shallow and burnt it into ashes in very large heaps, a portion only of which we used and ploughed into the soil. These contained so much of the elements, as well as the basis of manures, especially potash, that we never used any other manure except chalk, whilst for four years the land was under a succession of corn crops, which yielded a most abundant produce both of corn and straw. The large quantity of ashes we obtained enabled us not only to apply each year a portion of them to the land where they were burned, but we had also a supply which furnished enough for use on the other farm crops applied with the drill, especially the root crops, such as Mangolds, Carrots, and Potatoes.

After four years' cultivation this land was clean and fit for laying down for permanent pasture, and as we had found the land so fertile we did not hesitate to seed it in a corn crop of April Wheat, which, although it produced as much straw as could be grown, it never injured the seeds, which took remarkably well. The seeds, however, were furnished by a local seedsman as a proper mixture for such lands. As we did not then understand the matter sufficiently to enable us to select the best sorts, we insisted

only upon sowing 6 lbs. per acre of the yellow Suckling (*Trifolium minus*), and it became a regular plant all over, but the annual Rye Grass died the second year, and very much weakened the appearance of the plant. By a mere accident in cutting the grass for feeding our horses the men had allowed a portion to get over-ripe, and the seed from the Suckling and other sorts of grass fell out and struck root so thickly that this portion of the pasture proved more productive than any other part for many years afterwards, and made good all deficiency caused by the dying-out of the annual grasses.

We wish also to mention the result of successful renovation of pasture and park lands upon an estate of 300 acres. We found on first looking over the land that it consisted of about 150 acres of arable land, and a similar extent of pasture, in the most neglected state we had ever seen a property, and our experience induced us to adopt what was generally considered at that time a most unusual proceeding—namely, to cultivate the whole of the arable land without the use of any other manures except artificial or hand manures, including, however, the consumption of cake and corn by sheep on the root lain. On the other hand we decided upon the renovation of the pastures, which were almost entirely denuded of grass by the constant feeding of horses and sheep, which bite so much closer than horned cattle, that there only remained a few herbs and Daisy roots to be seen. On these pastures the experience we have detailed relating to the effect of couch and earth upon grass land induced us to adopt the plan of using a compost of earth and chalk mixed with farmyard manure, and indeed all other manures not required in the large garden of the establishment. After lying about six or eight months, and being mixed by turning the heap, this compost laid out in the autumn of the year was the only means we used for manuring, but the land being so naked and bare we thought it right to sow and work-in with the chain harrows 10 lbs. per acre of yellow Suckling. Now, this mode of proceeding, together with the assistance which we expected and did actually obtain from the action of earthworms, proved so beneficial that after three years of this management we estimated the letting value of the land to have been doubled both as to the arable and pasture upon the estate.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This work is greatly in arrear, and this seed time for Wheat reminds us of some past seasons such as we cannot easily forget. In 1841 we could on the strong loams and flat clay soils sow very little Wheat even during the month of September. Where, however, it was sown it did not succeed, and the deficiency of plant was fatal to the crop in most instances, for there was no seed time with regard to weather from the 1st of September to the 14th of December. The years 1852 and 1872 were bad seasons, yet the late-sown Wheat maintained the best plant. Therefore if the home farmer has sown but little or no Wheat yet, he should not be over-anxious about the matter, but wait with patience and be prepared when the weather becomes suitable to make the most of every dry day. The home farmer should specially consider one point, that when the season arrives as to the condition of the land, not to be deterred from sowing by reason of the date of either month from November until the middle of February. An idea prevails that Wheat should never under any circumstances be sown in January; but from experience we say, Sow on the first fair weather which occurs after the 1st of October, and in extremely adverse periods it may not occur until December, January, or early part of February. After the latter date on the average of seasons we should do well to wait and sow Lent corn.

Hand Labour.—Much of this will depend upon the weather, but may be taken as fairly represented in our last week's "Work on the Home Farm."

Live Stock.—We fear that many sheep and some cattle may be again lost by the coathe or fluke rot this next winter; but let it be remembered that salt is the great, and we may say the only, preventive or remedy; for if the sheep or cattle are only slightly affected, salt given, and lumps of rock salt being always within reach of the fattening animals, with nourishing food, with a larger proportion of hay and less of roots, they may if not seriously affected become fit for the butcher. They should be accommodated with dry lairs either of boxes for cattle or sheds for sheep, for it is perfectly unreasonable to expect diseased animals to recover or get partly fat if they are obliged to live in the open fields in the winter months. All cattle in the boxes should now be receiving a full allowance of cake, and as the cake or corn is increased let the roots be decreased in daily allowance down to 56 lbs. per day, and to increase the cake or corn in preference to giving them any hay at all, but to give good sweet straw *ad libitum*, with rock salt accessible to every animal at all times. The team horses—these ought always to have a lump of salt within reach, especially those which receive, as they all should, an allowance daily of roots about 12 or 15 lbs. of Mangolds, Swedes, or white Carrots, the latter being the best root they can have and may without injury after they become accustomed to it receive a double

allowance per day, with hay and straw chaff mixed, not forgetting two bushels of good oats per week per horse.

At this time many of the early Dorset and Somerset lambs will be strong and able to go upon root-feeding if the land is dry, such as sand, limestone, or gravel and dry loams. They will require the best possible system of feeding, not only for their sake, but for that of the ewes also, when it is intended as usual to fatten both together, so that they may be sold at the same time, or nearly so. To make or rear and feed first-class quality of early lambs for sale at the period from Christmas to Easter is a matter requiring not only great personal attention to details of feeding, but also a course of management to secure the health of the animals. When the ewes and lambs are kept entirely in the open fields they are subject to certain disorders, some of which may be avoided. At about three weeks or a month old the lambs will be strong enough to be put on root and trough feeding in advance of the ewes, but before this they ought to be docked of their tails to about 4 inches in length, and the ram lambs castrated. On recovery from this operation they may then be fed in fold in advance of the ewes, the use of which they will have previously shown and taught on their grass lairs. It is very important when lambs and ewes are feeding on roots that the ewes should have their roots cut with Gardener's cutter, and have the cake or corn given in the meal state mixed with the roots, instead of giving cake with hay chaff, which is best given by itself. The fold for feeding the lambs in advance should be entirely cleared of all roots and greens, the object being not to allow the lambs to run out into the Turnip or Swede greens, which is often detrimental in the event of frost or snow. As the fold will confine the lambs within reasonable bounds, it will be more likely to induce than to resort to the troughs, especially if they are covered, as they ought to be; for young lambs will go to the covered troughs for shelter oftentimes, and will be then enticed into feeding at the earliest period. This is a matter of the greatest importance, because the more choice food they can be induced to eat at the trough the less milk they will require from the ewes. To induce the lambs to eat at the earliest period it is important that the food should have an agreeable aroma like white Carrots, the next best food for them would be white hearts of Cabbages. At any rate the root food must be cut into small pieces, which is done with a hook into the cutter and then passing the root pieces twice through the cutter, which, if carefully done, the small dice-like fragments will be readily eaten by the youngest lambs, especially when mixed with the best Russian or American oilcake meal and bean meal in the proportion of two-thirds cake and one-third bean meal. This is a desirable mixture, because the lambs cannot then eat their roots without eating a quantity of the superior kind of food, which it is difficult to get them to eat at the early period, either by itself or in admixture with hay chaff. We cannot name any quantity of food for lambs, because they ought never to see an empty trough, but be fed twice a day, and what they do not eat readily should be removed and given to the ewes. As the lambs ought never to feed from the same troughs as the ewes, the lambs should be fed in advance of the ewes, and the lamb gate stopped until the ewes have eaten their bait, and which, to prevent waste, they always ought to do before leaving the trough.

BIRMINGHAM CATTLE AND POULTRY SHOW.—The entries for the show of 1881 were the largest ever received for the Exhibition, and the total this year, 3920, is slightly in excess of last year. There is little material change in the numbers in the agricultural department, those for sheep and pigs showing a slight increase, whilst the cattle are over an average. Roots, corn, and Potatoes are equal to, poultry are in advance of, and Pigeons slightly under, last year. We understand that Shorthorns and Herefords will be both well represented. Some of the Devon classes will be much stronger than usual; Scots and Crosses muster well, with good reputations from over the border, and the Sussex and Norfolk men will for the first time try their Red Polled beasts, with a view to induce the Council to give them classes in the future. Birmingham is the only place to see Shropshire wethers to advantage, and nearly a hundred of these favourite sheep will be penned. There is a full show of pigs, Tamworths being in great force. The railway companies are now fully alive to the importance of the Exhibition, and excursions are promised from all parts of the London and North-Western, Midland, and Great Western systems. The judging is on Saturday the 25th, open to life members free, the general public paying 10s. for the privilege of seeing the awards made.

POULTRY AND PIGEONS

POULTRY NOTES.

We understand that since judging Pigeons at the Crystal Palace, Mr. T. C. Burnell has left England for some months for the south of Europe, and has cancelled all his judging engagements. His place at Birmingham will be taken on Saturday by Mr. O. E. Cresswell.

THERE seemed little competition at the Crystal Palace auction sale

for the prize birds there put up. In the Dorking classes but two pens changed hands—viz., the first-prize Dark cock at £20 and the cup cockerel at £17. Many of the winners were priced at sums which we used to consider by no means prohibitory; whence, then, comes this apathy of the public to claim them? Probably the general financial depression has something to do with it. Another reason is that there will be better choice at Birmingham, and that of birds less shown. Fanciers are by degrees realising the fact that the greatest winners are not necessarily the best breeders. At Birmingham many birds are shown which go to no other shows, hence it is a peculiarly good place at which to obtain useful stock birds. The highest price we heard of at the Palace was £50 paid for Mr. W. F. Addie's cup Game Bantam pullet.

It seems to us a pity that at so large an exhibition as the Palace, and one which ought to be so generally representative of all poultry, White and Black Cochins should be mixed together. When they were here shown separately we remember large and good classes of both varieties; now that they are amalgamated the Whites are few, and Blacks almost entirely absent.

We wish the authorities of the Palace, or some other large show, could be induced to follow the example of the Poultry Club at Cambridge, and give more extended classification for Polish fowls. In the classes for "Black or any other colour," but four cocks and six hens were entered, and the sole representative of the "Any other colour" was one Buff cock.

The popularity of Japanese Bantams seems to increase. The class for White Rose-combs had but six entries, that for Sebrights eight, and very poor ones too; White-booted five, and Cuckoos four, while no less than twenty pairs of Japanese were entered. It seemed a pity to see Lady Dartmouth's beautiful Frizzles again unnoticed here. The Judge considered that they should have been entered in the "Any other variety" class. Were Frizzled Cochins or Brahmas shown in the classes for such breeds they would undoubtedly be passed over. Why should not the same rule obtain in Japanese Bantams? There is something in this argument; at the same time, in the case of so purely fancy a breed as Japanese Bantams, the points of which have not been very accurately tabulated, we think a little more latitude might be given. However, in future we should advise her ladyship to enter her beauties in the "Any other variety" Bantam class.

We have before us the schedule of the Oxford Ornithological Society's Exhibition, to be held in the Corn Exchange, Oxford, on December 6th and 7th. To the usual show of cage birds and cats one for Bantams has been added under the patronage of the Bantam Club. There are six classes for Game Bantams and six for other varieties, all shown singly. There are two selling classes for pairs respectively of Game and any other variety of Bantams. There are also three classes for pairs of fancy Ducks—viz., Mandarins, Carolinas, and any other ornamental variety.

We understand that at the meeting of the Bantam Club, held during the Crystal Palace Show, the rules of the Club were carefully considered, revised, and improved, with reference to the now extended operations of the Club. Mr. Cresswell inquired on behalf of several fanciers of Japanese Silkies if this breed could not be encouraged by classes at shows held under the patronage of the Club, and received an answer in the affirmative.

At the Farnham Show, held on Tuesday, November 21st, the entries were—Poultry, 239; Pigeons, 109; Cage Birds, 115; Rabbits, 63; Total, 536—not a bad entry for the Show of so young a Society.—C.

POULTRY NOTES AT THE CRYSTAL PALACE SHOW.

Spanish were more numerous and better in quality than we remember to have seen for some time past. The old cocks were hardly looking their best, and were characterised by some roughness of face. The cup went to the winning hen (Street), which had a large, good, smooth lobe and a fine face. The second hen had a beautiful rounded lobe, but was hardly ready. Cockerels were a very good class, the cup going to Mr. Le Sueur for a bird large in face and lobe. Mr. Harmer's second-prize bird and Mr. Underwood's third were but little behind the winner. Pullets though very good were hardly up to the cockerels in quality. First (Street), smooth face and nicely rounded lobe.

Houdans were wonderful classes. The cup very properly went to Mr. Marx for an old cock which we have never seen surpassed for size and quality. We rather preferred third (Lindsey) to second (Boissier), as this latter was a shade too dark. We noted h.c. (Wingfield-Stratford) and h.c. (Thomas) as being also specially good in quality. The winning hen (Mrs. Lane) won by size and colour; second (Turner) being best in head properties. Cockerels were a very good class. Here we hardly agreed with the Judge, and preferred second (Nickolls) to first, which, though good in crest, was small and rather failed in comb. The Dairy Show winner was here properly passed over.

Pullets again were an especially good class and must have been hard to judge. We considered 941 (Wingfield-Stratford), only h.c., the best. First (Jackson) undoubtedly won by colour, as she was lacking in size and head properties.

Crève-Cœurs were not numerous, but the winners were quite up to the average of those recently seen. Captain Turner was the most successful exhibitor, taking the cup and two firsts; the remaining first, that for cockerels, going to Mr. J. Ward.

La Fleche were a small but good class. Mr. Calvert took first and second, Mr. Tegetmeier third. We heard two questions raised as to these birds. The first had very large combs, second and third small neat combs. Which is correct? First and second again were without crests, third had small crests. Surely one must be wrong. We will perhaps have a word to say as to this on another occasion.

The *Hamburg* classes were fairly filled, those for Blacks being most numerous. The winners were in nearly all cases first-rate birds, but the general quality does not seem to improve. We heard some pretty free comments in reference to trimming and comb-cutting, and it seems a pity that the Judges are not more severe in putting down such practices.

Game had 268 entries, but were not, on the whole, up to the quality of some former years. Mr. Matthews' first-prize Black Red cock, Messrs. Proctor & McKinnon's winning Black Red cockerel, and Mr. C. W. Brierly's winning Duckwing cockerel were the pick of the classes, and were model birds.

Indian Game were here classed for the first time. All the winners came from Cornwall, where this breed is popular. They much resemble Malays in type and plumage, though perhaps more brilliant.

Malays were well represented. Mr. Rallinshaw's cockerel here added another to his list of victories, and the same gentleman stood first in the hen class with a hard-feathered pullet of good colour, hardly so erect in carriage as we like.

Polish had a liberal classification, and were fairly numerous. In the Spangled classes the indecision of fanciers between lacing and spangling has, we think, had an injurious effect. The winning Golden-spangled cock (Silvester) was so heavily spangled on breast as to be almost black, but otherwise very good. The winners throughout the Golden classes showed less white in crest and tail than we have sometimes seen. The cup for Polish went to a grandly crested Silver-spangled cock (Smith), whose chief fault was a straw-coloured shade on back and shoulders.

The winning *Brown Leghorn* cockerel (Verrey) deservedly took the cup for this section, and was the finest we remember to have seen. His lobe was very slightly tinged with canary colour, and we cannot say that we regard this as a fault. Too much has, we think, been made of the pure white lobe, which can hardly be attained in conjunction with bright yellow legs. The winning White cockerel (Fraser) was another noteworthy bird, though not such a wonder as the cupwinner.

Plymouth Rocks were very numerous, having no less than sixty-five entries in two classes; but there seemed to us to be a great lack of quality. The first cockerel (Jackson) was large and shapely, but had a white patch on each shoulder. Second (Macdonald) large again, but a coarse comb and traces of feathers on legs. The winning hens were better, the cup going here to Mrs. Ainsworth for a large bird. We noted in this class a tendency to abandon the characteristic cuckoo marking, in which the two shades of grey blend into each other and form bars across the feathers, for a black spangle on a white ground. This is effective, but is a new departure which we cannot say we incline to favour.

Andalusian cocks were placed in such a position that they had all the light from the back of the pens, which were not covered; this may account for the cup being awarded to a bird with far too much white in fact, although otherwise good.

Minorcas were only moderate. The winning cock about the best; second white in face again. The winning pullet (Dominy) was, we thought, the best bird in the two classes.

Langshans seem as much in need of a standard as ever. The two classes were, however, well filled, and some of the winners showed wonderful gloss.

The variety class was a failure in numbers. First went to Scotch Greys, second to Yokohamas, and third to Silkies, practically the only competitors.

Game Bantams had an extra incitement in the twenty-five guinea challenge cup offered by the Bantam Club. They were wonderful classes, but owing to the absence of back covering to the pens and to the cold exposed situation in which they were placed, they were hardly seen to advantage. Mr. Walton's well-known Pile cock added still further to his trophies by winning the challenge cup for best Game Bantam in the Show, and the cup for best in the cock and hen classes. The President of the Bantam Club was in great force, winning first with a Black Red hen (closely pressed by Mr. Anns with a beauty of the same colour), cup in Black Red cockerels with a perfect little gem, and two cups and second in Black Red pullets with two very perfect birds, of which some good judges preferred the second, claimed for £50. Black Rosecombs were a good class. The cupwinners (Crowther) good in all points, of the miniature Black Hamburg type. The same exhibitors easily won first and second in the White class with very perfect little birds. Japanese had twenty entries and were generally good. We cannot agree with the Judge in excluding Lady Dartmouth's beautiful frizzled birds from competition. They

are undoubtedly Japanese, and properly classed as such. Sebrights have fallen off in quality and were not numerous. White-booted only five pens; the winners well shown, but rather slim and long in limb. Third contained the best cock, but very badly shown. The winning Cuckoos (Walton) were decidedly the best, being small, neat, and trim, of the Scotch Grey type. In the variety Bantam class frizzled Japanese of good quality were first.

Turkeys, Geese, and Ducks were all good classes, though some of the latter were in such darkness that the Judge must have felt inclined to wish for a special development of the obnoxious electric light exhibition in that quarter.

Table fowl we omitted to search for.

May another year see the birds back in their old quarters, and a more thorough supervision of the penning arrangements. We fear that more than one exhibitor may find there is "death in the cup" won at the Palace this year.

THE POULTRY CLUB.

THE annual general meeting of the Poultry Club was held in the Marble Hall, Crystal Palace, on Tuesday, November 14th, at 3.30 P.M. The attendance was not large, but amongst those present we noticed the Hon. and Rev. F. G. Dutton (in the chair), the Earl of Winterton, Rev. W. Serjeantson, Rev. H. Morgan, Miss May Arnold; and Messrs. G. B. C. Breeze, O. E. Cresswell, A. Comyns, T. Christy, A. Darby, J. C. Fraser, R. E. Horsfall, T. P. Lyon, S. Lucas, M. H. Mills, C. F. Montresor. After a few opening remarks from the Chairman the Report for the year was read by the Secretary. It was as follows:—

ANNUAL REPORT.

LADIES AND GENTLEMEN,—In accordance with the precedent established last year we have the pleasure at this, your annual meeting, to submit to you the annual report of the proceedings of the Club since the Crystal Palace Show of 1881.

Your Committee have met fifteen times since the last annual meeting of the Club, and numerous meetings of the sub-Committee appointed to undertake the work connected with the preparation of the Standard of Excellence have also been held. Some twenty-six new members and sixteen new associates have been added to the Club during the year, and it now numbers 124 members and 81 associates.

For the first time since the formation of the Club a show has been held directly under the management of the Club. Through the courtesy of the Committee of the Cambs Ornithological Society a Club Show of poultry was held at Cambridge on January 4th and 5th, in conjunction with the Show of Pigeons and Rabbits of the local Society. The hall at Cambridge is eminently suited for the purpose of a show, the space being ample, and the light all that could be desired, and the thanks of the Club are due to the Cambs Ornithological Society for the cordial way in which they co-operated with the Club to make the Show a success.

We think we may congratulate you that so far as regards the quality of the exhibits and the general management of the Show, it was marked by considerable success. Exhibitors generally expressed themselves as well pleased with the result of our first attempt; but owing partly to the date being somewhat too late in the season to secure as numerous an entry as the liberality of the prizes offered would have required, and partly to the fact that the attendance of the public was not so large as might reasonably have been expected, the receipts from all sources fell considerably short of the expenditure.

In one direction a considerable advance has been made by the Club during the year.

We regard it as of much importance that the penalty attaching to disqualification by the Club should be made a substantial one. This can only be effected by the number of shows held under Club rules being so considerable that exclusion from exhibiting at them implies exclusion from many shows of importance. Since your last meeting the influence of the Club in this direction has much extended, and no less than twenty-eight shows have been reported to your Committee as held, or about to be held, under Club rules. Amongst these we may instance Belfast, Buxton, Banbury, Dorchester, Exeter, Hertford, Kendal, Liverpool, Lincoln, Nottingham, Southport, and Wolverhampton.

Subscriptions in aid of the funds of such shows held under Club rules as were of sufficient magnitude to be of more than mere local interest have in most cases been granted; but your Committee regret that in consequence of the heavy expenditure on the Club show already referred to they have latterly not been able to make such grants as freely as might otherwise have seemed desirable.

Your Committee have had to take into consideration several cases of fraud in connection with the exhibition of poultry. We regret to have been obliged in two cases to inflict the extreme penalty of perpetual disqualification, while in two others the lesser penalty of disqualification for one year was deemed sufficient. In a fifth case of some notoriety your Committee were pleased to be enabled to remove the stigma attaching to disqualification at a show from a gentleman on whom, in our opinion, it had been unjustly inflicted.

In consequence of the circumstances connected with this last-named case, your Committee have thought it desirable to vary the rules to be used at shows held under the Club's auspices, so as to entitle exhibitors at such shows to an appeal in all cases of disqualification. This step seems to have met with the approval of the local committees, and the new rules certainly afford to exhibitors an additional security against groundless charges.

The work connected with the preparation of a new standard of excellence has made considerable progress. With some trifling exceptions the draft standards of the various breeds have been prepared. As to some varieties, the replies from fanciers have been full and numerous, and the task, though difficult, has resulted in the preparation of a draft standard which is fairly complete, and probably will not require any great amount of alteration. As to the other varieties, however, the replies received have been so meagre that your Committee have had difficulty in framing a standard which could be deemed satisfactory even as a draft; and, as to these, much in the way of revision will be necessary.

The draft standards of Brahmas, Cochins, Dorkings, Game, and the French breeds have been published, with a request for comments from those interested. Copies have been sent to the leading poultry judges, asking for their assistance, and the fanciers of those breeds have been invited to meet to settle the final

standards of these breeds. These meetings have only been held to-day, so that this report cannot include any account of their proceedings.

(Signed) F. G. DUTTON, President.
ALEX. COMYNS, Hon. Sec.

November 13th, 1882.

The Secretary then proposed an alteration in Rule 22 of the Club rules by leaving out the words which provide for the sending of copies of the list of members, annual report, &c., to exhibitors at the previous Crystal Palace and Birmingham Shows, which was carried unanimously.

It was then proposed by the Secretary and seconded by Mr. M. H. Mills that

"The resolution as to the settling of the final standard [of excellence] passed at the last annual meeting be rescinded. That the settling of the final standard of the remaining varieties be entrusted to an editing committee, who should be instructed to act upon the comments upon the draft standard received from judges and fanciers, and to further consult so far as may be deemed necessary with the leading judges and fanciers."

It appeared that as to several breeds of which the draft standard had been already published, and for the settling of the final standard of which meetings had been fixed for that day, there had been a difficulty in getting a sufficiently large attendance to render a further adoption of this method of settling the final standard desirable.

After some discussion the resolution was carried.

The following resolution was then proposed by Rev. W. Serjeantson, seconded by the Hon. Secretary, and carried:—

"That in the view of this meeting it is desirable that it be known that the standard being prepared by the Club is merely intended as a guide to and for the information of judges and fanciers, and not as binding or attempting to bind the judges."

After the usual votes of thanks to the Chairman and Hon. Secretary had been passed the meeting terminated.

OUR LETTER BOX.

Insurance of Cattle (P. D.).—The Imperial Live Stock Insurance Association, offices, 446, West Strand, London, W.C., insures horses, cattle, and other live stock against death from accident or disease.

Cabbages for Cows (Cowman).—Nearly all kinds of Cabbages are good for cows in full milk if they have white hearts without decayed leaves attached, but the best sort is the Drumhead Savoy, and they will not affect the taste of the milk but very slightly if without any decayed leaves. If, however, the milk is required for butter-making we cannot recommend Cabbages, but prefer Mangolds or Carrots, but best of all the large cattle Potatoes, which do not injure the flavour of the butter.

Carrots for Horses (Idem).—The best Carrots for feeding horses in winter are the White Belgian and the Red Intermediate, more particularly if grown on a shallow gravelly soil. We think that it is the best plan to grow Mangolds and Carrots on the stretch in alternate lines, to be sown about the last week in April or the first week in May; if sown earlier they cost more in clearing the weeds away. The stretches should be about 20 inches or 2 feet apart in order that horse-hoeing may be effected between the lines. Do not hoe out the Carrots to the distance they should stand—about 8 inches apart, but thin them by hand-pulling after the roots get the size of the finger, for the pulled roots then are valuable for cattle, and the remaining ones are safe from the grub, wireworm, which are nearly sure to destroy a large portion of them, particularly when the season is dry, if hoed out when the plants are very small.

Insects Infesting Canary (J. P.).—The insects infesting the birds are termed red mites or cage bugs, and are a species of *Acarus*. The best method of destroying them is to thoroughly clean the cage, saturating the cracks with linseed oil, and then filling them with flowers of sulphur, also dust the sulphur amongst the birds' feathers and in the nest after it has been cleaned.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882. November.		Barometer at 29.4 Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun.	12	30.094	31.0	30.6	E.	43.1	42.4	28.4	50.1	23.8	0.124	
Mon.	13	29.980	41.9	40.5	E.	42.3	46.5	36.3	60.3	29.8	—	
Tues.	14	29.928	39.4	36.7	N.E.	42.6	40.9	37.1	47.8	33.3	—	
Wed.	15	29.795	37.7	35.8	N.E.	41.9	42.7	34.9	73.4	30.8	0.482	
Thurs.	16	29.142	34.7	34.7	N.E.	41.3	39.6	32.2	49.8	31.9	0.076	
Friday	17	29.894	36.7	34.8	N.	41.0	41.7	34.2	66.3	32.3	—	
Satur.	18	30.047	30.1	30.1	N.E.	40.2	38.4	25.4	43.0	23.3	0.300	
		29.840	35.9	34.7		41.8	41.7	32.6	53.8	29.3	0.982	

REMARKS.

12th.—Dry and cold, sun shining through much haze.

13th.—Wet at first, afterwards fine and cold.

14th.—Cloudy; dry and very cold wind.

15th.—Fine, with bright sunshine; evening dull, slight rain 5.30 P.M. and 9 P.M.

16th.—Sun at first, turning to cold rain; fair in evening, high wind.

17th.—Fine, bright, and cold. Red aurora visible at 5 to 6 P.M., and very pale green with streamers about midnight.

18th.—Thick fog at first, clearer afterwards; rain in evening, heavy after 10.30 P.M.

Nearly 10° colder than the previous week, and much below the average. Fine aurora on 17th, and thick fog in morning of 18th.—G. J. SYMONS.



30th	TH	Royal Society at 4.30 P.M.
1st	F	
2nd	S	
3rd	SUN	1ST SUNDAY IN ADVENT.
4th	M	
5th	TU	Sale of Nursery Stock at Sunbury by Messrs. Protheroe & Morris.
6th	W	Society of Arts at 8 P.M.

PRUNING AND TRAINING FRUIT TREES.

WINTER pruning should be done as soon after the leaves have fallen from the trees as possible; but newly planted trees are best pruned in February. Pruning may seem a simple matter, and it is for those who know how to do it; but to be a good pruner instructions are requisite from a practical man who thoroughly understands hardy fruit culture, with careful study of the character of the trees. As many have not that opportunity I will offer a few remarks, which may be acceptable to some readers of the Journal.

Some people think that pruning is simply cutting away long growths that have been made during the summer; but where trees are properly managed those shoots are removed during August after the trees have made their summer growth. Pruning should be directed to insure the proper balancing of the tree and to induce fertility. Severe pruning is not required for orchard standards, except during their early stages, so as to produce a foundation for the future tree, after which all that is required is thinning the branches to prevent crowding and keeping the centre of the tree open. When pruning young pyramid Apple and Pear trees lay a good foundation at the base of the tree, so as to insure it becoming of good shape. It will soon make its top growth. In some cases the shoots will require to be cut back severely, so as to balance the tree evenly. After the trees have made their summer growth cut back the leading growths which are to furnish the tree to about two-thirds of their length if they have grown strong, cutting-in the lateral growths to about four eyes.

At the winter pruning balance the leading shoots, so as to form the framework of the tree, and prune the laterals in to one or two eyes to form fruit spurs. Do not cut off any fruit buds, which are easily distinguished by their round plump appearance. Old-established trees, if they have been summer-pruned, require the laterals to be pruned back to one eye or close to the fruit buds, cutting out any branches that are crowding the others. Some Apples are not well adapted for pyramids, and should be grown bush shape. These are such as Small's Admirable, Cornish Gilliflower, Betty Geeson, and others of similar habit.

Espalier Apples.—These look very pretty grown by the side of walks. The branches should be trained about 15 inches apart. Prune the growths to four eyes in August, removing all growths as they appear afterwards. At the winter pruning cut these in close to the fruit spurs, pruning the leading growths to 18 inches, so as to cause them to break back.

Cordons.—These are grown as horizontal cordons, trained about 18 inches from the ground, but are more frequently trained obliquely to a trellis at an angle of 45°. This style of growing Apples produces very fine fruit, and a large collection may be grown in a small space for exhibition. These require the same kind of pruning as for espaliers. The horizontal cordons are very pretty by the margin of walks. Plant 12 feet apart, and train to a strained wire 18 inches from the ground. When the leader of one tree meets the bend of the next it may be grafted on to it.

Pears on Walls.—Good trained trees are not seen so much in gardens as formerly. I think if young gardeners would pay more attention to hardy fruit culture it would be much better for them. Pears may be grown in different shapes on walls, but the majority are trained horizontally and fan-shaped. If the wall will permit of the trees being trained fan shape do so, if not train them horizontally. In the first place see that the trees are young and healthy. The following method of training fan shape is good. Choose a tree with each pair of branches equal distance from the others. A tree that has been trained for a horizontal will do well. Train the branches at an angle of 45°, taking the leader straight up, to be cut back at the winter pruning so as to cause three more shoots at equal distance from the others. At the August pruning cut the breastwood in, leaving the leading shoots entire. At the winter pruning cut the laterals in closely so as to form fruit spurs, or close to the fruit buds. Prune the leading shoots back two-thirds of their length, so as to cause the back buds to break. Another mode of fan-training is to procure a young tree with about six shoots, starting from the base. Train the lowest tier of branches almost horizontally; regulate those equally that are left, keeping the centre open to throw strength into the lower branches. Cut each shoot (except the lower tier, which also should be shortened a little to make the back buds break) to about 18 inches; train as many shoots from them as you can without crowding (about 1 foot apart or 18 inches will do well), and carry them on annually until the tree is furnished. If any of the branches seem wide apart as they advance train other branches from them, so as to furnish the tree thoroughly. When any of the spurs become long cut a few back annually, so as to keep the tree uniform.

The cordon system of training is very simple. The first year plant at an angle of 60°, the next year train them at an angle of 45°, or those trees that have grown well. The first year after planting cut each cordon back two-thirds of its length, and at each succeeding season cut back the leader according to its strength, always being careful to cut back to a wood bud. As the trees advance in age, if any are seen not likely to reach the top of the wall do not let them fruit, and assist them at their roots as recommended in a former article for exhausted trees. This mode of training is not yet general in England, but it is well worth practising, as many varieties may be grown in a small space.

Plums and Cherries for Walls.—These should be grown fan shape. Keep the lower tier of branches well down and the centre open until the lower part of the tree is well furnished, then fill up the centre and lay in fruitful wood as required. Cut out all exhausted and worthless wood at the winter pruning. Young Plums and Cherries should not be pruned back severely, only balancing the trees. Plums and Cherries make very fruitful trees if grown as pyramids for a fruit garden. If

for an orchard, plant standards. All the pruning that standards require is to keep the centre open and not let the branches become crowded.—A. YOUNG.

LAPAGERIAS.

THE Lapageria is certainly king of greenhouse climbers. Everybody who admires flowers admires its large waxy bells. The red kinds are most plentiful, and indeed the most beautiful, but the white is an exquisite flower, plentiful now, but long scarce.

For dressing vases where the flowers may hang in a natural way Lapageria sprays are useful, and add at once to the grace and the richness of any arrangement. For bouquets they are by no means to be despised. The most beautiful bouquet we ever saw was made of a groundwork of scarlet Begonias more than half hidden by single blooms of *Odontoglossum Alexandræ*, and a single bloom for a centre of Lapageria alba half protruding from the mass. Through the crystalline purity of the Lapageria and the Orchids the Begonias were seen, giving all an exquisitely charming appearance. Of course the only positive colour was complemented with its only proper complement—green. The green also added grace; it was furnished by fronds of *Adiantum cuneatum* all over the bouquet, and as a fringe around it.

Lapagerias are strong-rooting plants, and like good living. Few plants make a greater number of roots for the size of the plants, and this should be borne in mind. Not unfrequently I have seen plants not doing well, and all that was wanted was more root room.

No soil suits them better than very fibry rather light loam. In large pots pieces of freestone or charcoal may be mixed in the body of the soil with advantage. Some I know use peat largely or even exclusively for soil, but that is a mistake. The plant certainly likes the soil first named best; indeed, it is not particular about soil at all, as the different composts recommended by successful growers prove. At the same time it is well worth some trouble to secure a good soil for such a plant.

They like water, and when the roots have taken possession of the soil liquid manure; but a sourness is fatal to them. To guard against this the drainage must be ample and carefully arranged, and the soil porous and open.

Its great enemy is green fly, which is sure to settle in the points of the young shoots. If green fly is allowed to have its own way the shoots will make no progress, and if crushed between the fingers and thumb the shoot is likely to be injured. The best plan to keep it free is to occasionally damp the young leaves and shoots with liquid insecticide applied by means of a sprayer. Nicotine soap we have found efficacious. Scale is apt to infest the older leaves, and is easily disposed of by means of the sponge and soapy water.

A cool moist greenhouse temperature suits it best, and it will do well in a shady place. In favoured localities it does well outside. Curiously enough the white variety is hardier than the red, although scarcely so vigorous. Possibly the greater vigour of many red-flowered plants is the cause of their being more susceptible to cold.—SINGLE-HANDED.

MUSCAT OF ALEXANDRIA GRAPES.

DURING recent years I have inspected many grand houses of Muscats in various parts of the country, but never remember having seen such superbly finished examples as at Knowsley Hall gardens a short time ago. I have seen larger bunches in many instances, but the crop was heavy and even throughout, and the bunches of most suitable size for table. That beautiful amber colour so desirable in this Grape was excellent, and not one berry could be found in the two houses (the two being 70 or 80 feet in length and proportionately wide) that were not highly finished. It is seldom, indeed, that we have the pleasure of seeing such general excellence throughout a house of Muscats. In the majority of instances there are individual Vines carrying bunches of fine quality, while other Vines or bunches do not attain the same high finish. The Vines in question are comparatively young, and were lifted two or three years ago and replanted—not because the new border was exhausted, but because it had never been fully made. When the Vines were first planted only a narrow border was made for them, with the intention of adding to it in a season or two; but the large amount of renovation required to be done in other vineries, Peach, and numerous other fruit houses, prevented Mr. Harrison doing so as early as he originally intended. When removing the remaining portion of the old border it was found that the roots of the Vines had extended through it just below the surface, and found their way beneath the flags at the back of the house which formed the walk. The flags were

resting upon sand, which was crowded with nearly all the feeding roots the Vines possessed. They bore, however, grand crops of first-rate Grapes every season whilst their roots were rambling amongst the sand, which to all appearance is only poor material for Vines. I have invariably noticed that when a quantity of sand is deposited by any means on the surface of a Vine border the roots soon find it, and rapidly form quantities of fibres in it. Vines evidently like sand. Is it because it retains moisture?

The roof was well covered with moderate-sized healthy leaves, more being allowed to develop than are generally seen in Muscat houses. The opinion prevalent is that the sun must strike direct upon the bunches, otherwise a fine amber colour cannot be obtained. In many instances we find the foliage tied on one side or entirely removed, so that the sun will act with full force upon the bunches. Grapes ripened under these conditions generally commence shrivelling earlier than those ripened under the shade of moderate foliage. The system of exposing the bunches to full sunshine in order to finish them thoroughly is unnecessary. The condition of the Muscats at Knowsley this year is alone sufficient to prove that they will colour to perfection under a good roof of foliage, and in a season that has been remarkable for the absence of sun, in this part of Lancashire at least.—W. BARDNEY.

PLANTING ROSES—SPRING v. AUTUMN.

MY view of this question is that there is room for both systems. In the case of any alterations that might be contemplated which necessitated the removal of Rose trees from one part of a garden to another, I should prefer early autumn planting, say during the last week in September or the first week in October. I do not think there is anything to fear from a few sappy points withering or a few leaves turning brown, for while this is going on the roots will be taking to the new soil, and the plants will be in a better condition to withstand frost than if they had not been disturbed, owing to the check hardening the wood. But at this season care must be taken that the plants do not remain long out of the ground, neither laying in by their roots nor covering them in any way; but as soon as they are lifted place them where they are to remain, properly secure them, and in some autumns probably a little water to settle the soil about the roots might be attended with advantage, but unhappily not such autumns as the one we are now experiencing.

The young vigorous trees from the nurseries are never at rest until they have been exposed to a sharp frost, thus it is generally late in the season before they will bear transit safely. Even at that late season, if the weather were open and the ground in fair order I should prefer planting them as soon as received, and should the winter prove mild they would have a great advantage over spring-planted Roses; of course all autumn or any newly planted trees should be mulched as soon as the operation is performed.—C. WARDEN, *Clarendon*.

MY experience in regard to this subject is in distinct opposition to that of "A NORTH COUNTRYMAN" where he says that "the plants thus laid-in in November have never commenced rooting until spring." I have had convincing proof in several instances that they soon begin to make root-action after removal in the autumn.

Some few years ago, when standard Roses were more the fashion than they are at the present time, we purchased a quantity of Briar stocks for standards. These were received before the ground was prepared for them, their roots were attended to, and they were laid-in in bundles of fifties until the ground was ready to receive them. During the operation severe frost set in, which delayed the planting for more than a month, and these hocky sticks of Briars were then found to have made young roots, some of which were an inch in length. And again this autumn I had occasion to move some Roses which were laid-in from October 25th until November 4th, and even in that short time some of them had begun root-action, although the ground is this season so extremely wet and cold.

Being convinced that roots after removal make progress during autumn—and the table of the mean temperature of the earth given recently by Mr. Mawley certainly favours that view—it is evident that plants having this partial re-establishment must under any circumstances start with greater vigour in the spring than those planted at that season of the year, provided they are protected from severe frost, which, in the case of dwarfs, can easily be done; in fact it is advisable to mulch newly-planted Roses in order to check radiation, whereby the earth loses its heat. This same mulching drawn to the base of the plants will serve also as a protection against frost, and as the practice of

pruning hard back is now recognised we need not trouble about those parts which will be eventually cut away.

"D., Deal," seems to anticipate a change in the time of planting Roses somewhat as great as what has taken place within the last few years in the manner of pruning; but we must bear in mind, although success has this past season attended Mr. Prince's spring planting of Teas, the spring and summer throughout have been most favourable for such. Had there been a dry parching March and April such as we experienced two years ago the result might have been far different.—J. R., *Woodhatch Lodge, Reigate*.

SPEAKING generally, autumn-planted Hybrid Perpetual Roses must succeed best. They will have made some roots, and will be in a better position to resist the varied and trying alternations of spring temperature. I plant always as early as the nurserymen advise the removal of Rose trees, and for the last two seasons dwarfs only, and I never lose a plant. Teas also do well planted at the same time; but earlier and finer blooms can no doubt be obtained by turning out Tea Roses from pots when all danger of spring frosts is past, and this plan I mean to adopt next season, when I shall have occasion to plant out some climbing Roses. I have seen it tried in the south very successfully.

My experience is in favour of hard pruning outstanding Teas instead of simply shortening their shoots. Thus treated their growth is more vigorous and satisfactory.—A. M. B.

WITH regard to the question raised by your worthy correspondent "D., Deal," of the advisability of planting Roses in February in preference of November, I for one fail to see the advantage of this change. I have procured Roses from the nursery in autumn, and from unavoidable circumstances have not been able to permanently plant them at the time we received them, but should have them planted the first opportunity in February. What do our nurserymen say about this change? For the past ten years I have been more or less engaged in planting, and I find we have had fewer losses in planting in autumn than we have in the spring-planted trees. Certainly this has been the most sunless wet season we had here for nine or ten years; in fact, I think "D., Deal," knows some of the disadvantages we have to contend with in growing Roses in this wet and cold locality. With the exception of last February, I fear I should have to count back a number of years before I could point a February which was available for planting Roses in this locality. Would not this spring planting retard their blossoming and make them flower later in the summer than those planted in November? For the first season after planting I have found this the case here; but wet as this autumn has been, we are now busy engaged planting, and if others will do as we are I feel sure they will not regret taking the advantage of early planting. Deeply fork or dig over the ground on dry days. This is of the utmost importance to the roots of Roses or trees of any description. One error I fear many of our Rose-growers commit is incorporating a quantity of manure with the soil they plant their Roses in. This manure has a tendency to hold the wet, and decay the roots of newly planted trees before they start into growth, and the consequence is a weakly growth in spring. My advice is to plant the Roses in the soil pure and simple, and give a good coating of littery stable manure round the collar of each plant, and I think there will be but few losses. The majority of Rose-growers in this locality plant in November, stake the plants, and draw the shoots round the stake with matting, and protect the plants with bracken.—C. ROBERTS, *Higfield Hall, near Leek*.

CULTURE OF GARDENIAS.

ON page 446 "W. L. H.," writing on this subject, recommends potting to be done after flowering in June. I readily admit these plants can be potted any time during the season while their roots are active. It is, however, a question, when established plants require larger pots, whether it is not wise to carry out the operation much earlier. While their buds are swelling rapidly small growths are generally produced and the roots are active. If transferred into larger pots when in this stage quantities of roots will have reached the sides of the pots before the time recommended for potting by "W. L. H." Under these conditions the plants will be ready for starting luxuriantly into growth after they have flowered. The advantages of much earlier potting than recommended is very marked where the pruning-back system is practised after flowering, as is the case in many gardens.

I had begun to think the pointed stick, as recommended by "W. L. H." for liberating the roots when carrying out the operation of potting, was a thing of the past. It is an unnecessary practice, and destroys, however carefully performed, numbers of

roots which must be growing rapidly if potting is left until the month of June. This system does not facilitate the plants taking to the new soil readier or earlier, but cannot fail to check the plants to a greater or less extent, and thus retard their development.—A CULTIVATOR.

THE BEST PEACH-WALL PROTECTOR.

NOR one word need be written in praise of glass wall protectors for Peach trees. Their value and importance has long been an established fact, and in all gardens where a regular supply of fruit must be had they are undoubtedly an indispensable necessity, for trees left exposed on open walls are so much the sport of weather as to render a crop of fruit always a matter of uncertainty. It goes without saying, therefore, that protectors must be had, and it also follows that the cheapest and best form should be chosen for so general a want. Perhaps I ought to say the best form as cheap as possible, because a simple lean-to of a given angle must always prove cheapest; but it is not the best when the angle is more acute than 45° , because the upper branches of the trees are then liable to be too near the

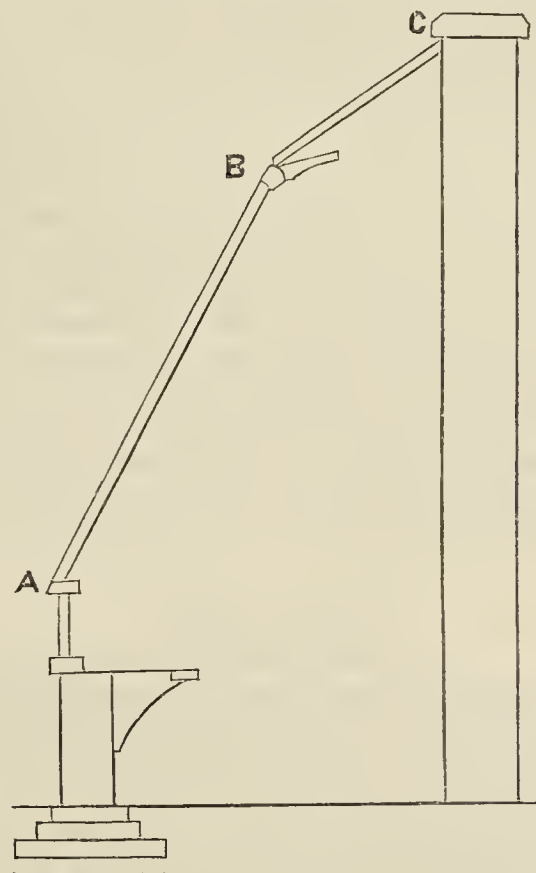


Fig. 83.

glass. It was this reason which probably led to the introduction of the lean-to which we figure; but it possesses another and more important property, to which I wish to call attention.

Figure 83 represents a transverse section of a lean-to, built five years ago for the protection of Peach trees trained to the wall, and covering every part of it before the house was built. The lower slope from A to B is at an angle of 60° , and the upper slope from B to C is at angle of 37° . In early spring the sun's altitude is insufficient for its rays to fall upon any portion of the trees through the obtuse upper slope, but they do so readily enough through the lower acute angle, with the curious result of the lower branches not only being in blossom, but also making growth freely for a considerable time before there is much sign of animation in the upper ones. All the sorts of Peaches are affected alike, so that the trees have for a time the appearance of a line having been drawn along them at about 42 inches from the top, which has checked the upward flow of sap.

The effect of this early start upon the lower branches is always visible. It renders them singularly robust, and there is an equal distribution of vigour throughout each tree and a freedom from the common fault of a vigorous growth in the upper branches at the expense of the lower.—EDWARD LUCKHURST.

PROTECTING THE BLOSSOMS OF FRUIT TREES.—A few remarks may be applicable here on covering Peach trees. Some people cover the trees whilst in bloom day and night, which is a very bad practice. On warm days there are generally plenty of bees about whilst the trees are in bloom, and if the trees are covered in the daytime very few bees (if any) will be found under the canvas. The way I used to manage if the day was bright, which is generally a forerunner of a

frosty night, was to cover the trees about 4 P.M., so as to husband a little warmth, to protect the blossom, and if the night should be frosty do not uncover them until between ten and eleven o'clock, according to the weather. If, on the other hand, the night has been warm, uncover as soon in the morning as possible.—G. G.

ALNWICK SEEDLING GRAPE.

WHEN Mr. Bell sent out this Grape I remember, in explaining its character to myself, that his words were—"Without artificial fertilisation it will not set a berry." Since then the columns of this Journal have many times explained this failing. Regarding the value of the Grape, the complaint of Mr. Cooke suggested to my mind how much I would like to have had added to my vineries for next year's prospects a house of this Vine well ripened that had failed to grow a crop this. For a gentleman's table I prefer the equally well-grown Alicante; but after this, save the extra labour during the blooming period that this Vine requires, I think all the advantages are on its side. The Alicante Grape I consider to be nearly as good as the Hamburgh at any season, and certainly it is much better at this season. The Alnwick Seedling to follow up to the period of the Gros Colman—January and February—I like next, but I prefer the flavour of the Alicante, or, rather, I prefer it to the rougher pulp of the Alnwick Seedling berry. It is free-growing, and it will do better with the Black Hamburgh than the Alicante, as it requires about the same heat to ripen its wood, and less than it takes to ripen the wood of the Alicante. It is a most prolific Vine, seldom showing less than three bunches at each eye, and, what is of as much importance, during a succession of years on a single rod of, say, 18 feet, it will finish quite 5 lbs. more fruit than will the Hamburgh or Alicante, and will colour well. Here, during the blooming season, every bunch, and no matter what the variety, is dusted with a fox's tail each day at noon, and no other trouble is ever taken to impregnate with other varieties. This year from nine Vines I have had an excellent crop well set, the berries of good size, and the bunches similar to the one exhibited on my prize stand at Edinburgh, which was from a single cane 15 feet long that carried twenty bunches. I only know of another Grape that will do this, and that is Gros Colman.—JOSEPH WITHERSPOON, *The Vineries, Chester-le-Street.*

ARAUCARIAS.

(Continued from page 458.)

IN my previous notes upon the culture of Araucarias (page 456) the word "success" in the fourth line from the top of the second column was misprinted "suckers," which gives to the sentence an entirely different meaning from what was intended.

A. CUNNINGHAMII.—As a species not only handsome in itself but useful as a stock for some of the others this well merits a note, and it might be advantageously grown more generally than it is, for it is scarcely less graceful and suitable for decorative purposes than A. excelsa, though differing greatly from that in appearance. Young plants are raised from seeds either for growing-on or to serve as stocks; but it has been stated that the species has also been propagated by cuttings of the roots, a method that deserves more attention, and which might possibly be applicable to others. As with those already mentioned, there is a good typical specimen in the Kew winter garden. It is 25 feet high, having the branches four or five in a whorl, slender, with the branchlets closely placed, imparting quite a tufted appearance to the branches, especially as the lower part near the trunk is apt to become bare. The leaves are needle-like or awl-shaped, about half an inch long, the old ones dark green and the young ones very fresh bright green. Two varieties are in cultivation named glauca and longifolia, which titles sufficiently indicate the distinguishing characters of the plants. Of the two glauca is the most attractive, the glaucous tint of the foliage being well marked. It was introduced by Messrs. Loddiges from Moreton Bay, and twenty years ago was certificated by the Royal Horticultural Society.

A. Cunninghamii is known as the Moreton Bay Pine, and in Eastern New Holland forms extensive forests, particularly in the neighbourhood of Moreton Bay, individual trees having been found nearly 200 feet high. Mr. Walter Hill of Brisbane considers it "the most ornamental and useful tree in Queensland," the timber being extensively used in the colony. The wood is said to be "strong and durable when kept dry, but soon decays if exposed to alternate wet and dry;" some of it is, however, finely grained and takes a high polish. A white resin is produced, quite transparent and crystal-like, which often exudes from the trees and hangs in icicle-like masses 3 feet long.

A. EXCELSA.—The Norfolk Island Pine, as this species is popu-

larly termed, is, next to A. imbricata, the best known in England, and is more generally grown in houses for decorative purposes than any of them. In its native country it attains a great height, frequently exceeding 100 feet; but probably the largest specimen in cultivation is that in the temperate house at Kew, which is about 30 feet high or slightly over. It is a fast grower, and the distance between the whorls of branches, which are rigidly horizontal, gives the tree a somewhat formal appearance, but in a small state this is not so noticeable. The branchlets are slightly drooping, the secondary branchlets being closely arranged, 8 or 9 inches long; the leaves half an inch long, slender, and curved towards the tip of the branches. The typical form is of a peculiar green shade, but there is a variegated variety which has whitish shoots, not very handsome but distinct. The finest variety is, however, that termed Napoleon Baumann, which is distinguished by a glaucous tinge, and the habit is also graceful. Still another variety, A. excelsa speciosissima, is in cultivation and has the reputation of being hardier than the species, having been grown out of doors in French gardens. The ordinary type has been planted out of doors in Ireland, but without success, as moderate frost has killed the specimens. Small plants are occasionally used for table decoration, but they are rather too formal in appearance for that, and are better suited for the conservatory.

A. IMBRICATA.—Any formal description of this well-known Conifer would be quite superfluous in these pages: a few words may be devoted to its history. It is a native of Chili, and according to the authority already mentioned (Parlatore) it abounds upon the western side of the Andes from latitude 36° to 48°, or from Santiago to south of the island of Chiloe. It was first discovered by a Spanish officer, and subsequently by several botanists. But what we are principally concerned with is its introduction to England, and this we owe to Mr. A. Menzies, who, having accompanied Capt. Vancouver to Chili, succeeded in obtaining cones and plants, the latter being conveyed to this country in 1876 and presented to Sir Joseph Banks. One was planted at Spring Grove, Isleworth, and the others at Kew, where the only remaining specimen of the batch is still living, but not of a very promising appearance. This historical tree is near the new range, and notwithstanding the care taken of it the branches appear to be gradually dying. It is about 20 feet high, the spread of branches covering a similar space, the lowest whorl being 7 or 8 feet from the ground; the apex has a stunted appearance very different from the numerous other healthy examples in the same gardens. Had this tree enjoyed a more suitable situation we might have expected a considerable advance towards the 100 feet which it is said to reach or even exceed in Chili. As it is, the finest specimens in England are as much as 60 feet in height, though some of these are considerably younger than the Kew tree. The wood of A. imbricata is valued in its native haunts, where also a resin it produces is employed for medicinal purposes.

Several varieties of A. imbricata are grown: one named tenue from its more slender habit, another variegata, and a third variegata aurea. The last-named is said to have been raised at Castle Kennedy about a quarter of a century ago, and a few years since the original plant was still growing there in fine health and beautifully variegated. The other variegated form, Gordon states, originated in Glendinning's nursery at Turnham Green.

A. RULEI.—This is a very distinct New Caledonian species which requires more heat to ensure its success than the others, but when well grown it is very striking. Like the others this reaches a height of 100 feet in its native home; but I have not seen any in this country a tenth of that height, in fact it is rather scarce. In some of the Australian botanic gardens, however, it is said there are several handsome specimens. The branches are in whorls of three, the branchlets being arranged in a pinnate-like manner. The latter are a foot or more long, the leaves lanceolate, curved, half or three-quarter inch long, and very closely set. The colour is a rich dark green, the habit bold, vigorous, and handsome. It is a very striking species, and small specimens in pots have a noble and distinct appearance when arranged with Ferns or Palms. An unnamed species is grown with this in the Palm House at Kew, which appears to be a more slender form of it, though equally beautiful, the branchlets having the leaves so short and closely pressed that they resemble shoots of the strange little Crassula lycopodioides.

Several other species are known, but some are not yet in cultivation, and others are extremely rare.—L. CASTLE.

IN an article in the *Journal of Horticulture* of November 16th on Araucarias, it is stated that "plants of Araucaria Bidwilli were brought home by Mr. Bidwill in 1842," and "that one was purchased by the Duke of Northumberland for a hundred guineas, and the other transferred to Kew, and in the temperate house

there are two specimens about 25 or 30 feet high, and in admirable condition." In 1872 a similar statement appeared in another paper, but the credit of being the purchaser was given to the Duke of Devonshire, and the price two hundred guineas. It is curious upon what ground such statements can have originated. Neither is correct. The truth is this: Mr. Bidwill, on visiting England in 1843, brought with him a small plant about a foot in height, growing in a flower pot. He put it in the hands of Mr. Stevens, the auctioneer, for sale, the upset price being £25; but no bidder was found for it, and I being present Mr. Bidwill asked me to take it to Kew and take charge of it for him. I brought it home in my hand. Such is the history of the fine *Araucaria Bidwilli* now in the conservatory at Kew. It was some time before other plants were introduced which came to Kew, and I have no recollection of hearing that either the Duke of Devonshire or the Duke of Northumberland becoming possessed of plants at that time; indeed, I am not aware of any large plants being in the country than those at Kew.—J. SMITH, *Ex-Curator of the Royal Gardens, Kew.*

EARLY POTATOES.

THE weather here during the last three weeks has been most unfavourable for any outdoor work. We have had three weeks' storm and almost constant rain followed by frost on the last three nights of 2°, 3°, and 5° Fahr. below the freezing point. I fortunately had the last of my field Potatoes secured a short time previously, but I am satisfied one-third of that crop is still undug in Ireland, and a large fraction of that is hopelessly injured. I examined some left behind on the surface in the vegetable grounds and others that were an inch beneath the surface. They were all soft, spongy, and wholly unfit for anything but manure. After saving several acres of both Champions and Magnum Bonums I have had not one stone of diseased tubers, though of less size than last year, from early blighting. It is not uncommon, especially in suburban gardens where space is limited, to grow Potatoes in the same place year after year, but it is undesirable. If the Potato must be grown and the same land must be used lime would be desirable as a corrective of the sourness frequently noticed. I attribute the above satisfactory results to the crop being grown in new land and to the seed being obtained from a different district.

This brings me to the principal point I intended to say a few words about—Autumn *versus* Spring-planted Potatoes. Two years since I planted four lines each of Veitch's Ashleaf Kidney, Snowflake, Early Rose, Beauty of Hebron, Bresee's Peerless, and Gramplan the 20th of October 6 inches deep, using stable manure. The winter came unusually severe, and I put on a few inches more of litter later on. A large number decayed, especially of the Kidneys and Snowflake; and though I removed a quantity of the surface of the drills in April to permit the heat from the sun's rays more play, the vast majority were later than those planted early in March, and with puny growths that never became robust. I make these few remarks, as I see one of your correspondents has inquired on the subject. I shall not try the experiment again. I am now trying several varieties of Cauliflower exposed in the seed bed for the winter, and shall tell you the result later on. With frame culture the trouble, and subsequent dissatisfaction "buttoning," &c., has induced me to try a hardier system of treatment.—W. J. M., *Clonmel.*

OF HUMUS.

(Continued from page 473.)

"HUMUS," says Ville, "has its origin in the actual substances of plants, which, by a kind of spontaneous decomposition, has lost a certain quantity of hydrogen and oxygen in the form of water," and he tells us that many intelligent men place humus in the foremost rank as a fertilising agent; but, as he adds, let us "go to the root of the matter, gaining our light and information from experience. How and under what circumstances does humus act favourably?" As mentioned in the latter part of my former letter, the views of Liebig upon this important ingredient of soils appear to have been somewhat misunderstood or imperfectly stated. I think it, therefore, the more necessary in what I have to say to let him speak for himself.

"Up to a few years ago," Liebig writes in his "Letters on Modern Agriculture," "scientific agriculture taught, and all practical men firmly believed, that the productiveness of a soil was dependant on the quantity of humus, or carbonaceous remains of a preceding vegetation, contained in it. Without raising doubts on the efficacy in certain cases of the organic matter of farmyard manure, it may be asserted that nobody who possesses any knowledge of the matter now believes that the produce of a field in

carbonaceous substances bears any proportion to the amount of humus in the soil, and that its fertility can in reality be estimated, as was formerly supposed, by this humus." Inasmuch as before Liebig wrote, "Humus had the honour," as Ville says, "of serving as an explanation for everything that could not be understood," the terms of this expression of opinion cannot, I think, be cavilled at. Liebig showed incontestably that it was utterly impossible that all the carbon found in plants could be derived from the amount of humus in the soil; and therefore, whether humus is capable of supplying nourishment directly to vegetation or not, we may leave this part of the question for the present, and consider how and when humus certainly exerts a beneficial action. We shall find, I believe, that we may safely credit it with more good effects than would be supposed from the above quotation from Liebig, and certainly with effects sufficiently important to justify my inquiry.

"The first of its good effects," Ville says, "is that, like clay, it possesses the property of absorbing a great deal of water, thus contributing to the maintenance of the humidity of the soil. If, however, we remember that the soil contains only a very small per-centage of humus, it is very difficult to allow that such small quantities have the power of modifying the physical condition of the soil." The remainder of this letter will be occupied by the inquiry whether, notwithstanding the apparent difficulty in believing in the modifying powers of comparatively small quantities of humus, there may not be more difficulty in rejecting the evidence in favour of their important influence.

The fact is, as it appears to me, Ville's experiments on another prominent function of humus, to which I shall allude hereafter, led him to underrate the effects produced by the humidity which it encourages—effects which will not be despised by those who, like your readers, have continually before their eyes the beneficial influence of "mulching." Davy may perhaps be looked upon in the present day as somewhat antiquated, but his results, deduced from actual experiment, must still be regarded with the utmost respect. He made careful investigations on the absorption of different soils, and he states, "I have always found it greatest in the most fertile soils, so that it affords one method of judging of the productiveness of land." He found that a thousand parts of the soils named below, after having been dried at 212°, absorbed, during one hour of exposure to the air, the quantities of moisture given in the following table.

Sterile soil of Bagshot Heath	3
Coarse sand	8
Fine ditto	11
Soil from Mersea in Essex	13
Very fertile alluvium, Somersetshire	16
Extremely fertile soil of Ormiston, East Lothian	18

—(Davy, *Agr. Chem.*, 5 ed., p. 176.)

In the next table I give some of the results of a series of experiments, carried out by Schübler, for the purpose of determining the absorptive power for vapour of water of different kinds of earths and soils.

The column of figures gives in thousandths the quantity of hygroscopic moisture absorbed, by previously dried soil from air contained over water (and hence nearly saturated with moisture), in twenty-four hours.

Quartz sand, coarse	0
Lime sand	3
Ploughed land	23
Clay soil (60 per cent. of clay)	28
Fine carbonate of lime	35
Loam	35
Heavy clay soil (80 per cent. of clay)	41
Pure clay	49
Garden mould (7 per cent. of humus)	52
Humus	120

From the facts expressed in the above two tables it is manifest that soils (though undoubtedly much depends on the fineness of division of their particles) may have their absorbent properties very largely increased by an admixture of 20 per cent. of clay, and that humus, the absorbent property of which is nearly 2½ times as great as that of clay, must influence a soil to a still greater extent. We know, in fact, that sandy soils which have little attractive force for atmospheric vapour, and are therefore arid and dry, may be greatly ameliorated in this respect by admixture with clay, or, which is better still, by admixture with humus, as is done by dressing with vegetable composts and by green manuring.

At the same time, as many sterile soils contain humus in abundance, whilst sometimes fertile ones contain but a small proportion of it, it seems that humus is by no means indispensable to the life and full development of plants, its presence cannot be regarded as any sure test of fertility. Yet, though this is the case, may we not safely regard it as a more valuable constituent, independently of the mineral salts it may contain, than Ville and

Petzholdt admit, seeing that it so materially increases the absorptive property of soils for vapour of water, and thereby (when a sufficiency of plant food is present at least) greatly ameliorates their condition?—INQUIRER.

(To be continued.)

AZALEA NARCISSIFLORA.

THOSE who possess well-appointed plant houses have no difficulty in maintaining a supply of white flowers through the late autumn and winter months; but in the case of those who have only one or two, possibly only one, it may be of some use to say that *Azalea narcissiflora*, when well treated, will yield blooms from November till March, and thus place the amateur very nearly on a level with the possessor of many houses and a skilled garden staff. Finer and handsomer Azaleas there are, but not another that is so thoroughly useful; indeed I hardly know any other plant that will continue yielding supplies of blooms month after month in an ordinary greenhouse temperature in winter time.—S. H.

WHITE GRAPES.

IF I were going to grow Grapes for pleasure the first that I should plant of white Grapes would be the Duke of Buccleuch, which is undoubtedly the grandest Grape grown, and only requires simple treatment. With a border ill-drained, soured by unnatural heavy liquid manuring, or mulched to a degree that the hottest sun fails to warm it, then under these conditions this Vine will probably refuse to grow, but with reasonable treatment its growth may possibly be rather too luxuriant. Last year I had this Grape very fine, this year it has been partly a failure; but the reason was not far to seek. The Vine grew too vigorously last year, and the heat that would have been sufficient to ripen less luxuriant growth failed to mature it sufficiently, and the consequence was many stoneless berries. Both this Grape and the Golden Champion rebels against high feeding. With the wood well ripened you may prune it as you do other Vines, but failing this it is well to select the eyes that are most promising. Of the Muscat Grapes it perhaps is not necessary to speak, save that I consider the Tynninghame is distinct from the Muscat of Alexandria: it sets much better. The Bowood too, I think, is a distinct Grape.

When grown under the same conditions that suit the Duke the Buckland Sweetwater is in appearance the next Grape to the Duke—that is, as a rule. I do not mean to contend that it is superior in that respect to a few of those very fine Muscats we saw at Edinburgh. With me it keeps better than the Duke, but when fully ripe the flavour of the latter is superior. Next to the Duke I would plant it for a summer Grape.

Foster's Seedling has a much longer season than any of the above—in fact, I have for long had the opinion that its good keeping properties were not half known. Ripened in September the chances are it will keep better than Lady Downe's. For certain, unless the latter be exceedingly well ripened, it will do so. For comparison I would couple the Buckland with the Hamburgh, and Foster's Seedling with the Alicante. It has this advantage over these named in requiring less heat to ripen the wood. The flavour, too, is good, and it is a Vine that will stand rougher treatment generally and more liquid manure.

For a companion to Gros Colman Golden Queen is most suitable, as it, too, requires a long season, and the two varieties will make as fine a dessert for Christmas as any two Grapes that I know. I have seen it stated that Golden Queen does best in a dry border; here it fares equally with the others, and does equally well. The bunches average from 1 to 2 lbs., but the berries are so fine in size, golden in colour, and of such a brisk desirable flavour that it is quite a favourite. For a sick person I consider it the best of all the white Grapes. Waltham Cross if grown with Muscats is a showy Grape, but it is of poor flavour, and unless the wood be ripe it is the worst setter I know of. It keeps well and exhibits well, but it must have strong heat.

White Lady Downe's is a Grape with a somewhat sickly sweet flavour. It keeps well, but otherwise has no very great commendation, though to plant one Vine in a house of Lady Downe's might be desirable, as it is quite the natural companion of its black namesake.

Of the White Frontignans I have only had experience with Dr. Hogg, a Vine with a robust constitution and fruit of delicious flavour. I have had bunches upwards of 18 inches long, but if the wood is not quite ripe two-thirds of the stalks of the bunch will dry up, the berries refuse to finish and turn sour. It requires as much heat as a Syrian.

In regard to the class to which the Syrian belongs, if they are large call them Syrian, otherwise call them Calabrian Raisin or Trebbiano. I am stubbing them all up. This family of Grapes are best just to look at whilst hanging on the Vine. If really well grown and well ripened, as we see them finished at such places as Lambton and Hutton Hall by Mr. Hunter and Mr. MacIndoe, they look magnificent, and if I were in their place I should continue growing them; but they are not at all suitable either for market or small gardens. With myself the growth is so gross that I cannot possibly ripen the wood sufficiently to prevent shanking. In this way at least a half of the bunch goes, and then in damp weather those huge bunches are difficult to keep. I have nothing to say against the flavour, which is fairly good. It will be seen that I place great value on well-ripened wood. I repeat it, First see to the wood being well ripened, and then Grape-growing is not the difficult task many find it to be under other conditions.—JOSEPH WITHERSPOON.

ALLAMANDAS.

THERE are many who do not grow these, thinking that they require a great heat and extra attention, but these ideas are not quite correct. One plant of *A. nobilis* which is growing here in a 10-inch pot came into flower in July last. Since then we have cut many scores of blooms from it, and now there are many dozens of buds to open. In August and September it was fairly well off for heat, but during October and November the day temperature in the house where it is growing has never exceeded 70°, and the night temperature ranges from 55° to 60°, which certainly cannot be regarded as great heat, or more than could be given in many temperate houses. We would advise all who can command the heat we have named to introduce the Allamandas, as none of our choicest flowering plants can equal them in supplying a constant succession of blooms, and these are most valuable in all kinds of superior floral decorations. Every shoot terminates in a large cluster of buds, and as the rich massive flowers open it is easy to detach them without injuring the unopened ones. Probably if grown in a stronger heat the blooms would be forced out more quickly, and the period of blooming would be diminished, and in this way the cooler system of growing them has one decided advantage. A mixture of loam, peat, and sand without any manure is the best compost we have tried for them, and from the time the first bloom opens until the last one is cut guano water is given weekly with good results.—M. M.

THE NOMENCLATURE OF GARDEN PLANTS.

YOUR correspondent "JUSTITIA" takes exception to my statement that "we do not want the collections of weeds we see in botanic gardens;" but speaking from a horticultural point of view, which is the only point I pretend to know anything about, and without any disparagement of botanical collections in their proper places, I have to repeat that we want selections more than collections. There is such a host of really beautiful plants for decorative purposes amongst the hardy perennials, and there is on the other hand a much larger host of those which are of no use as decorative plants, which may, I think, be honestly referred to as weeds by the gardener, though doubtless I did make a mistake in speaking of weeds in a botanic garden; for inasmuch as dirt has been defined as "matter in the wrong place," so a weed is a plant in the wrong place—e.g., a Sunflower amongst the Potato crop, or a Cabbage in a bed of Pelargoniums. A botanic garden is certainly not a likely place to make enthusiastic cultivators of hardy decorative plants, for the gems are scattered about so widely that there is every probability of their being overlooked; but it is surprising what a number of really beautiful plants may be found to come in at any desired season if one has the patience to look after them and keep a definite object in view. The plants I grow are all autumn-flowering, and there are some two hundred of them, without reckoning Phloxes, Pentstemons, and the like, which are worth including in any collection. But it takes several years as things are at present to make even such a limited collection as mine, and I have had to throw away many sorts that did not possess sufficient merit, although unusual care had been exercised in the selection.

After all the trouble taken to obtain the plants and grow them it is a great drawback to their enjoyment that I do not know their names, or that in the course of twelve months I should refer to the same plant under three different names, as has lately happened in the case of what is perhaps the most beautiful autumn flower we have. When asked the name of this plant two months ago I gave it in writing as *Rudbeckia Newmani*, but was told I had given with the same plant the year before a name

beginning with the letter C. This was *Centrocarpha grandiflora*, under which name I had received the plant from the late Mr. George Wheeler, who probably did more to preserve hardy perennials when they were not fashionable than any other man in England, and I said the former was now the recognised name. Judge of my feelings when I took up the Journal, and was informed by Mr. Wolley Dod that botanists would not acknowledge the name *R. Newmani*, but that the plant in question was *Rudbeckia speciosa*. Well, I hope I have the right name now, but I confess I am not over-sanguine about it.

If it is unfair to blame the botanists for this confused nomenclature, as your correspondent infers I do, it is certainly quite as unfair on his part to blame the nurseryman; for as far as I recollect, when I was living in the neighbourhood of London, the nomenclature at the two great botanical gardens there was not always identical. Where, then, are we to find the "competent authorities?" It is comforting to learn that Professor Asa Gray knows Michaelmas Daisies, and that he is preparing a monograph of them; but when the monograph is completed will British botanists accept it, or will it only result in a few additional synonyms?—WM. TAYLOR.

PLANTS IN LATE VINERIES.

How often do we, on entering a late vinery where the crop is hanging, find the borders bare beneath, and the fruit and fading leaves above to look at. This is, perhaps, accounted the right thing in places where there is ample accommodation for everything. In most gardens now gardeners are obliged to make the most of every available space at their disposal in the autumn no less than the spring. Like many more gardeners I find it rather inconvenient to have even a late vinery empty for some three months in the autumn, and really, after all, it is not necessary that it should be so. This autumn we have had Ferns thinly arranged on our late house borders set on inverted pots, and amongst them Gloxinias, which gives the house a furnished and pleasing appearance. The Ferns—chiefly *Adiantum cuneatum*—were grown under the Vines all the summer in various sized pots for decorative purposes and for cutting from, and for both purposes the atmosphere of a late vinery keeps them in good condition. *Gymnogrammas* also thrive remarkably well. The Gloxinias were flowered last May and rested for two months, but not dried off, and were started in August in a Cucumber house, from which they were transferred to the late vinery as they came into bloom. The blooms are not so liable to damp in an airy house at this season as they are when more moisture is present; they require less water at the roots, they last longer in bloom. It is surprising that Gloxinias are not more extensively grown, for they are most accommodating plants. There are few plants indeed that can, with so much certainty and so little trouble, be had in bloom twice a year. No one need be afraid to have plants in his late vinery if he be careful to warm and ventilate them properly, and water carefully. The plants being placed on inverted pots the water passes through the latter into the border without causing any dampness in the atmosphere.—R. INGLIS.

DEW IN HOTHOUSES.

WITHOUT interfering too much in the discussion between Mr. Taylor and "W. Y." I may perhaps be permitted to make a few remarks on this subject, being much interested in the matter from the same reasons that influence Mr. Taylor, who, I think, has acted rashly in staking the value of his treatise or the correctness of his ideas on the subject of dew. In the first place Mr. Taylor, judging from his language, has a wrong conception of what is meant by the "dew point," and this I gather from the following passage at page 447. Speaking of our hothouses he says, "The temperature does not decrease so rapidly as that outside owing to the presence of warming apparatus, &c., which checks radiation, so that what is generally called the dew point is not actually reached." From this it is plain that Mr. Taylor imagines the dew point in the glass house and outdoors must necessarily be the same; and further, "that what is generally called the dew point" is some fixed point of the thermometer. So far as I can make out his words will bear no other construction than this, and on both points he is in error. The dew point under a glass roof and outdoors need not necessarily be the same, and there is no occasion for the temperature of the former to fall as low as it does out of doors in order that the dew point may be "actually reached." For a subject of this kind it is best to start with a clear conception of the meaning of words and terms, and I would here explain what the "dew point" is. I quote from Wells, Le Roi, and Wilson, the best authorities on the subject. "For

any assigned temperature of the atmosphere there is a certain quantity of aqueous vapour which it is capable of holding in suspension at a given pressure. Conversely, for any assigned quantity of aqueous vapour held in suspension in the atmosphere there is a minimum temperature at which it can remain so suspended; this minimum is called the dew point."

Mr. Taylor will therefore see that the dew point varies, and that there is no such thing as a dew point "generally called" in the sense he puts it and as I apprehend him, hence his reasoning between indoor and outdoor temperatures in the passage quoted by me is fallacious. His hothouse may stand at 100° at some period of the day, at which figure much moisture will be held in suspension, and when the minimum point is reached at which that amount of moisture can be sustained the dew point will be reached whatever be the outdoor temperature; and hence in practice we often see dew formed in hothouses and elsewhere when there is none outdoors, as, for example, under the conditions named by "W. Y.," as quoted by Mr. Taylor in his third paragraph. The rest of Mr. Taylor's remarks are not quite clear to me, but if his object be to make out that "dew formation in his hothouses" is due to other laws than that under which it is formed elsewhere, then I am afraid he has set himself a task. The time when dew is generally seen on Vines under glass most plentifully is just about sunrise, when the pipes have cooled and the foliage is cool also and filled with cold sap. Dew is then produced by condensation on the well-known principle explained by "W. Y." Soon after, however, the foliage gets warmed to the temperature of the vinery, and the dew is again dissipated by evaporation, just in the same way as a cold dry slate taken into a warm house will first become wet and then dry again on the same principle. The dew point in a hothouse must necessarily be an artificial one, and the difference between the dew points indoors and out is shown by the cold slate itself, which in the warm house immediately creates a dew point in the air it comes in contact with, causing the latter to part with its moisture, while outdoors that would not have happened.—CASUAL.



SEVERAL favourable notices of Mr. W. Taylor's work on the VINES AT LONGLEAT have appeared in continental publications, especially in *L'Illustration Horticole*, the *Bulletin d'Arboriculture*, and *L'Opinion*. It has also been decided to publish a translation of it in French in the "Transactions of the Belgian Federation of Horticulturists." The culture of Vines is being greatly extended in Belgium, and to this circumstance the interest in a really practical and lucid treatise is largely due.

— THE CONSERVATORY AT MESSRS. E. G. HENDERSON AND SONS, PINE APPLE NURSERY, Maida Vale, is now exceedingly bright and attractive, a large number of Chrysanthemums being very tastefully arranged around the stages, and proving the value of such plants when judiciously employed for decorative purposes. The varieties are numerous of all sections, including a good selection of old and new forms. In contrast with the Palms, Ferns, and similar fine-foliage plants which occupy the stages, the bright flowers of the Chrysanthemums have a most pleasing appearance.

— REFERRING to "F. H. W.'s" question about DESTROYING ANTS, Mr. J. Smith, The Gardens, Oakham Park, Ripley, Surrey, writes as follows:—"I was at one time much troubled with ants in a Melon house, and was quite unable to find their nest, so I endeavoured to poison them. For a trial I took two teaspoonfuls of best brown sugar, about a tablespoonful of water, and a small piece of phosphor paste, mixing the whole well together and placed in a wineglass, which was inserted in the bed so that the top of the glass was level with the surface. The result was that the next morning the contents of the glass was one thick mass of dead ants. It is best to have a glass vessel larger at the bottom, as this will prevent them crawling out when once they

arc in the liquid. A glass fingerbowl will do admirably. Sprinkle a little on the surface near the top of the glass to first attract them."

— MR. J. THOMAS, gardener, Brockham Park, Betchworth, Surrey, asks if any of our readers can inform him if there is a GRAVEL PIT anywhere near the South-Eastern Railway, where he could obtain gravel the same in every respect as the Shirley gravel, Southampton. He will be thankful for any assistance in the matter.

— "B." writes that "in the stove at Calderstones, Liverpool, under the charge of Mr. Tunnington, is a very fine batch of *CALANTHE VEITCHII*. It is seldom that this grand autumn-flowering Orchid is seen grown to such perfection as in these gardens. The pseudo-bulbs are of an immense size, many of them nearly 18 inches in length and proportionately thick, producing their spikes of beautiful flowers, which are fully 4 feet in length, with over thirty expanded flowers on a spike. These, associated with other plants and a number of *Calanthe vestita rubra*, render the stove very effective.

— "IN the same garden *URCEOLINA AUREA* is producing freely in pots and pans its scapes of pendulous flowers, which are remarkable both for shape and colour. This plant is worthy of much more extensive cultivation, flowering as it does freely at this season of the year, and it will stand while in flower in the conservatory or any cool house without injury."

— MR. G. BUNYARD, The Old Nurseries, Maidstone, sends us the following additional particulars concerning the WASHINGTON APPLE we figured last week:—"The fruit of this variety which I gave to Dr. Hogg was grown in a small unheated orchard house in a pot. The tree bore about eighteen fruits, and many were much larger and finer than the sample. They were grown at Hawkhurst by Theodore Moilliet, Esq., and he kindly sent me fruit for the information of the Royal Horticultural Society's Committee. The fruit takes two distinct forms in the same way as the Beauty of Kent (one like the fruit figured, and the other like Cellini Pippin). It is an American variety, and has remarkably fine foliage; it is also said to be equally good in flavour out of doors. In habit it is rather diffuse, and with the restricted culture (in pots) bears freely, and from its growth appears likely to be prolific on the Paradise stock."

— MR. ERNEST WILKINS, Hon. Secretary of the Sutton Amateur Rose Society, has forwarded to us a small pamphlet entitled, "PRACTICAL HINTS ON HOW TO GROW ROSES." The work has been prepared by the Committee of the Society in question, with the object of disseminating in a concise form information that will be of service to the Rose-growers of the district. Instructions are given on soils, planting, mulching, pruning, exhibiting, disbudding, and manuring. In the remedies suggested for destroying insects we observe that the quantities of the ingredients are not given whereby the applications may be safe yet efficacious. The list of Roses for exhibition is taken from our columns—namely the poll of the late election, and duly acknowledged; and "Memoranda for the Months" from Canon Hole's "Book about Roses." Though the compilers of the pamphlet are not desirous of making any capital by its sale, the work can be had from Mr. Church, bookseller, Sutton, Surrey, its price to non-subscribers being 6d.

— FOR some time past there has been a good display of CHRYSANTHEMUMS IN THE ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK, a long bank extending the whole length of the corridor. About four hundred plants representing all the best varieties are grown; and though no attempt is made at formal training an excellent effect is produced, the flowers being ex-

tremely abundant. A number of specimens of Bouquet Fait are particularly noteworthy, well showing the floriferous habit of this variety, as some of them are literally a mass of flowers. Incurved, Japanese, Reflexed, Anemones, and Pompons are all represented by numerous varieties.

— A CORRESPONDENT writes on November 24th:—"Mr. S. Whitfield, gardener to J. T. Cross, Esq., Beechwood, Aigburth, exhibited a fruit of PITMASTON DUCHESSE PEAR weighing 25½ ozs. This fruit was the more wonderful for its size, because it was grown on a small cordon only obtained last November. It would be interesting to know the weight of the heaviest fruit that has been grown of this variety."

— THE Secretary of the LEICESTER CHRYSANTHEMUM SHOW, referring to the note of a correspondent last week, states that the Show was not opened till three o'clock in the afternoon of Saturday the 18th inst., as many of the exhibitors are working men, and not at liberty to attend sooner. He further considers that as 150 window bills, 100 schedules, and 2000 small bills were circulated, and 500 people visited the Show, that it was not conducted in a "very quiet manner;" and adds if our correspondent had visited the Show he would have seen blooms exhibited in both the open and amateur classes with which he would have been gratified. In the open class for twelve blooms Mr. Landsell, gardener to T. Brooks, Esq., Barkby Hall; Rev. J. Bird, Walton Rectory; and Messrs. J. & H. Hickling, Loughborough, were the prizewinners. We have not space for the prize list of exhibitors in the local classes. Our correspondent visited the school on Saturday at 1.30; not on Friday, as was printed inadvertently.

— A CORRESPONDENT writes that "At a recent meeting of the Manchester Cryptogamic Society Mr. W. Foster exhibited a remarkable variety of *POLYPODIUM PHEGopteris*, which he had found at Patterdale last August. The pinnae of the fronds were cut up into long narrow lobes similar to *Polypodium vulgare* var. *elegantissimum*, and if the characters prove constant the variety will be a valuable one to cultivators of British Ferns."

— WRITING in reference to CHRYSANTHEMUM SŒUR MELANIE, Mr. C. Orchard, gardener to J. Galsworthy, Esq., Coombe Leigh, observes:—"I am glad to see the above variety is attracting notice, as I have recommended it for decorative purposes several years now. I first became acquainted with it in the spring of 1873. Through a little article of mine on the culture of the Chrysanthemum in a contemporary a lady living at Rhyl, South Wales, kindly forwarded me some rooted cuttings for trial. It appeared to be a great favourite in her neighbourhood. She had then grown it three years, but had not been able to find the name except in one trade catalogue, and was only to be procured in Gloucestershire. Mr. C. Turner of Slough was the first that I know to bring it out in London amongst a group of plants that he exhibited two or three years ago at the Royal Horticultural Society's meeting at South Kensington, when it was favourably noticed by the press. Last autumn the late Mr. Faulkner, gardener at Woolton Hall near Liverpool, sent me two or three cuttings of one he grew under the name of Souvenir de Melange, but which he said was synonymous with Sœur Melanie, and I have proved it is so this season by growing them side by side and giving them the same treatment. I have always described it as a small Elaine, and have found it best grown as bushes and partly disbudded—i.e., pinch off the small side flower buds and leave from three to five on a shoot. Perhaps Mr. Bardney will tell us how long he has been acquainted with it."

— IN reference to the YORK HORTICULTURAL FETE, to be held in June, 1883, it is stated that "the Exhibition will celebrate a quarter of a century's work in the promotion of horticulture by the Committee of this Society, it having been established in 1859,

and has always been in a prosperous condition. During that period it has paid upwards of £10,000 in prizes, and has divided upwards of £700 amongst the charities of York. A circular is now being issued by the Committee to the leading members of the nursery and seed trade of the country, inviting special aid in the way of extra prizes to supplement the most liberal schedule annually issued by the Committee. Vegetables have hitherto had but little notice here, so that an excellent opportunity is offered for extra prizes in this class. The Committee is anxious to make this twenty-fifth Exhibition the most remarkable the Society has yet held, and therefore earnestly hope this appeal will be liberally responded to."

— It is estimated that the POTATO CROP OF AMERICA this year will amount to at least 150,000,000 bushels, or an average of 92 per cent. against 72 per cent. last year, on the basis of a general average of 100.

— IN an article on parasitic plants in *Vick's American Magazine* the following particulars are given of *MONOTROPA UNIFLORA*, the Corpse Plant, a peculiar member of the Heath family:—

"This is not rare in Cincinnati, but always attracts the attention of the wanderer and frequenter of woods on account of its beauty. Though not a genuine parasite, it perhaps attaches itself to the roots of various species of trees, and, drawing its nourishment from them for a time, afterwards lives on the material furnished by decaying vegetable matter. Though very innocuous in appearance, a bad story has been told of it. It is said to be poisonous. A lady when handling the fresh plant had some of the juice driven on her lips. These being chapped at the time, produced sores like the poisoning of the *Rhus toxicodendron*. There is another side to the story, for another writer says that the expressed juice taken internally is highly recommended for nervous irritation and epilepsy, and, applied externally, is good for ophthalmia. He gives an instance in which in four weeks a very severe inflammation of the eyes was cured by applying the fresh juice of the stem of the plant to the inflamed surfaces. This plant is a remarkable instance of wide distribution, as it is found nearly throughout the United States and British America and in Mexico, and it even extends across the Pacific to Japan and India, and is another one of the resemblances between the floras of the two continents."

ADIANTUM CUNEATUM.

As this is not only one of the most useful of Ferns but a general favourite, I have thought that perhaps a few hints as to its cultivation may prove to be useful to some of your numerous readers.

As many people seem to have an idea that to grow the Maidenhair Fern, as the above is commonly called, a very warm temperature is essential to its well-being. The idea is also very prevalent, too, that it, together with other Ferns, cannot be grown successfully without peat, and as everyone has not peat to hand, and does not feel inclined to purchase any, it is not cultivated so much as it otherwise would be. Nothing can be more erroneous than such ideas. Anyone in possession of a pit or any other glass structure, with the means of keeping out frost, may grow the Maidenhair Fern as successfully as the one who has a much higher temperature and peat soil at command.

It is not very particular as to soil. Three parts loam to one of leaf soil, with a slight sprinkling of silver or any other sand, I find suits it well. The secret, if there is one, of growing it to perfection is good drainage and a plentiful supply of water when growing. It cannot, if it is in a healthy growing state and the drainage good, be too liberally supplied with water.

During its season of growth, and until, in fact, the fronds are fully matured, it should be shaded with some light material from the direct rays of the sun. When, however, it has completed its growth and the fronds fully matured it should be gradually inured to the sun and kept as cool as possible.

With such treatment as the above it can only be grown successfully, and it is far more useful for room-decoration, bouquet-making, &c., the fronds having a better texture, consequently possessing better keeping qualities for either purpose.—J. RICHARDSON, *Calverton Hall, Notts.*

THE WHITE DAFFODIL (*NARCISSUS ALBICANS*).

(SEE PAGE 505).

OF all the *Narcissus* in our gardens there are none of more delicate beauty, none having more exquisite grace of form, than

this species, which was called *N. albicans* by old Haworth, but which was introduced to English gardens, and had been carefully cultivated and preserved in them long, long before his time. Speaking broadly, our climate is just a little too rude to this dainty stranger "from beyond the seas," as Gerard hath it: and to my mind it represents those fair southern women who, as the old chronicles tell us, were brought to England as wives by some of the early crusaders, and who "languished and dyde notwithstanding the gret love and much esteame in the which they were helde by their lordes." Our stern northern winters were too bitter and scathing for them, and it is even so in some sort of this "fair floure," which lives rather than luxuriates, except especial care be given to it, in our gardens at home. It deserves, however, all the care that one may well bestow upon one of the very choicest gems of the beautiful race to which it belongs. No *Narcissus* can well be fairer than is this one on rich, warm, sandy soils near the sea—indeed, many a flower far less worthy is afforded the shelter of a glass roof and careful pot culture, and so treated this Daffodil in all its sweet pale beauty yields the palm to no other half-hardy bulbous flower.—DUBLINENSIS.

CHRYSANTHEMUM SHOWS.

BRIGHTON AQUARIUM.—NOVEMBER 21ST, 22ND, AND 23RD.

LAST year the Brighton Aquarium Company held their first Chrysanthemum Show, the success of which induced a repetition this year, and a very pretty show was provided. There was certainly a very decided improvement in all classes as compared with last year, the plants being better in every respect, while the cut blooms in some of the classes were indeed excellent, the large Anemone-flowered section being the finest we have seen anywhere exhibited this season. The Company also made a further venture this year in adding classes for fruit; but beyond that for black Grapes, which was well filled, nothing special can be said. This, no doubt, must be attributed to the general scarcity of hardy fruits this autumn.

The plants and cut blooms were arranged in the Music Hall. Adjoining this, and in continuity of it, is a most artistic fernery composed of massive rockwork, in the recesses of which are growing luxuriantly choice Ferns, Lycopodiums, and Mosses; while from the upper portion two or three streamlets appear winding their way from rock to rock, and these, uniting about half way down, form a waterfall of such proportions to be in keeping with the détour of the work.

On entering the Exhibition from the central hall the effect was very pleasing. In the front ground were bold groups of Chrysanthemums, Poinsettias, Heaths, &c., and in the distance the fernery formed a grand background. The schedule of prizes was in two divisions, the first of which was open to all exhibitors, and the second for gentlemen's gardeners and amateurs only. In the class for six standards, distinct varieties, Mr. W. Balchin, Hassock's Gate Nurseries and Western Road, Brighton, obtained first honours, followed by Mr. Jas. Turner, gardener to Major Way, Wick Hall, Hove. For six dwarf-trained, Mr. Spottiswoode, gardener to G. Duddell, Esq., Brighton, was far ahead of other exhibitors with a fine collection. Messrs. Balchin and Meachin, gardener to W. Armstrong, Esq., Withean, Brighton, were second and third. For six pyramids the first prize was awarded to Mr. W. Balchin, amongst which Peter the Great and Fair Maid of Guernsey were very good; while the first prize for six Pompons was justly awarded to Mr. R. Miller, Southdown Nurseries, Shoreham.

In the class for twenty-four incurved blooms the first prize was easily won by Mr. J. Ridout, gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate, with a stand of grand blooms; Mr. Meachin and Mr. Lipscombe, gardener to Mrs. Padwick, Horsham, took second and third places in the order named. With twelve incurved Mr. Ridout again obtained first honours, being followed by Mr. Wm. Jupp, gardener to J. Boulton, Esq., Eastbourne, second, and Mr. J. Wyatt, gardener to H. Padwick, Esq., Horsham, third. For twelve Japanese, distinct, Messrs. Ridout, Wyatt, and Jupp were the successful competitors. For twelve large Anemone blooms, Mr. Ridout and Mr. F. Hyde, gardener to R. Bacon, Esq., Keymer, were the winners.

In the division for gentlemen's gardeners and amateurs only, for four standard large-flowered varieties, distinct, Messrs. F. Hyde, Spottiswoode, and Turner were first, second, and third respectively; while for four dwarf-trained Mr. Spottiswoode took first; also for four standard Pompons and with one single specimen Mr. Spottiswoode was again to the fore. For four pyramid and single specimen Pompons Mr. Turner took the lead, followed by Messrs. Spottiswoode and Hyde. For twenty-four large-flowered incurved Messrs. J. Wyatt, A. Russell, Lewis, and W. Cornwell, gardener to F. Borchard, Esq., Uckfield. Twelve incurved the first was awarded to C. Goode, gardener to H. Stone, Esq., Eastcote; C. Fowler, gardener to E. R. Hall, Esq., Henfield, second; and J. Wyatt third. For twelve Japanese J. Wyatt, Jupp, and Harris, gardener to C. S. Eversfield, Esq., Denne Park, Horsham, won in the order named; and for six Japanese Wyatt, Harris, and C. Funnell, gardener to J. Thorne, Esq., Southove Grange, Lewes, were first, second, and third.

For six plants suitable for table decoration in or out of bloom the first prize was awarded to Mr. McBean, Cocksbridge, Lewes; though the second-prize collection shown by Mr. Balchin was in the opinion

of many far before the first-prize lot, and comprised a pair of beautifully coloured Crotons, two highly coloured Dracenas, and elegant plants of Cocos Weddelliana; Mr. E. Spary, Queen's Grape Nurseries, Brighton, third. For six berried plants in pots Mr. Balchin was first and Mr. Spary second; and for six Poinsettias Messrs. Charlton, Summerwell Nurseries, Tunbridge Wells, were first with a grand six, having bracts of immense size and splendidly coloured; they were followed by Mr. Balchin with smaller plants carrying their foliage down to the pots; and Mr. Spary was placed third.

For six *Erica hyemalis* Mr. Balchin was an easy first; and in the fruit classes open to all that for three bunches of black Grapes was well contested, not an inferior exhibit in the class. The first prize was, after a very close scrutiny, awarded to Mr. J. Ridout; and the second to Mr. R. Holmes, gardener to T. Wallis, Esq., Sister House, Clapham Common. The positions of these two were thus reversed from what they were the week previously at the Westminster Aquarium. They showed in both instances bunches of superior quality and finish. Mr. Balchin secured the third prize in this class. Mr. Apted, Broadwater, took the first for three neat and well-ripened bunches of Muscat of Alexandria. Mr. F. Hyde was first with six good dishes of dessert Apples, and won the same honour for six dishes of kitchen Apples; while Mr. R. Fowler was awarded first for an extra fine dish of stewing Pears, Uvedale's St. Germain's. A very handsome group of Poinsettias was contributed by Messrs. Charlton of Tunbridge Wells, who make this one of their specialties, and miscellaneous plants by Mr. Balchin and Mr. Spary; Mr. Balchin exhibiting amongst other fine plants a grand variety and superb specimen of *Cypripedium insigne*.

BIRMINGHAM.—NOVEMBER 22ND.

We have seen both larger and better shows than this the twenty-second autumn Exhibition, held in the Metropolis of the Midlands, yet the fine Town Hall was rendered attractive with Chrysanthemums, Primulas, and other winter flowers. There was also a creditable display of fruit, while several miscellaneous collections of plants and flowers contributed materially to the success of the Exhibition.

The principal class was for nine specimen Chrysanthemums, the first prize being a silver cup. This was well won by that good cultivator Mr. Dyer, gardener to Walter Showell, Esq., Edgbaston, with symmetrical plants about 2 feet high and 3½ feet in diameter, fresh in foliage, and with blooms of good average quality, especially Mrs. Rundle, George Glenny, Lady Slade, and John Salter. Mr. Newell, gardener to L. Hayman, Esq., Edgbaston, followed with smaller plants. These exhibitors occupied the same relative positions in the class for six Pompons, the plants being 4 feet in diameter and about half that in height, not closely trained, but free, yet tolerably close bushes, no stakes being visible. For a single specimen Pompon the positions of these exhibitors were reversed, both staging well. In the class for six large-flowered specimens Mr. Crook, Calthorpe Road, Edgbaston, was the foremost exhibitor, staging the best plants in the Show, followed somewhat closely by Messrs. Dyer and Padbury, gardener to R. Yates, Esq., Gravelly Hill. Mr. Dyer was also first in the single specimen incurved class with an admirable specimen of Mrs. Dixon 4 feet in diameter, very neat, and containing good blooms. The only Japanese Chrysanthemum noticeable was the first-prize specimen of Elaine with twelve fine blooms, exhibited by Mr. Shingler. Groups of "natural grown" Chrysanthemums were disappointing. By far the finest plants of the year for conservatory decoration were those exhibited by Mr. Allen the previous day at Manchester, and referred to last week. The production of such plants should be encouraged, as they are valuable for home decoration, and have an imposing effect in an exhibition.

In the classes for cut blooms the competition was not great nor the stands good as compared with the blooms at the London, Liverpool, and Southampton Shows. Mr. Comfort won the silver cup in the class for eighteen incurved varieties, and also the first prize in the class for twelve flowers; and although this was the best stand in the Show, it would not have been placed at the leading exhibitions. The other prizewinners in these classes were Messrs. Shingler, Tonks, and Padbury. Creditable stands of Japanese varieties were exhibited by Messrs. Shingler and Comfort, who obtained the prizes, the best blooms in the stands being fairly good. The season has evidently not been propitious for Chrysanthemums in this district, as very few of the blooms staged were of high-class character.

Of Primulas there was a great display, Messrs. Stacey, Caldicott, Burdon, Price, and Doughty being the prizewinners, somewhat in the order named in the classes for single varieties. Some of the plants, of the first two cultivators especially, were extremely fine, nearly 2 feet in diameter, with massive pyramids of flowers. Two varieties raised by Mr. Tomkins—Princess Louise, white, very fine, and Marquis of Lorne, red, were prominent by their excellence; but the richest Primula in the Show was Swanley Red. Swanley White (Fern-leaved), and Lilacina, exhibited by Mr. Cannell, also attracted considerable attention as highly meritorious varieties. A variety submitted as new (but not by Mr. Cannell), and prominently named Sir Beauchamp Seymour, was apparently identical with Swanley Red. The best double Primulas were exhibited by Rev. E. H. Kittoe, Boldmere Rectory; these were Lord Beaconsfield and Marchioness of Exeter, two good varieties, which have probably never been seen in finer condition. Mr. Tomkins also staged excellent plants. Mr. Doughty, gardener to H. H. Hill, Esq., Edgbaston, was the most

successful exhibitor of Poinsettias, the plants ranging from 18 inches to 2 feet high, with half a dozen good heads. The best stove and greenhouse plants were exhibited by Mr. Stacey, gardener to S. Eaton, Esq., Harborne; and Mr. Jones, gardener to E. C. Matthews, Esq., the former having excellent foliage plants, and the latter *Erica hyemalis* 3 feet in diameter, and *Pancratium fragrans* very good. Mr. Newell won the chief prize for table plants, and Mr. Dyer for nine ornamental-foliaged plants in 8-inch pots; they consisted chiefly of Palms, Dracenas, and Ferns, and were in excellent condition.

The display of fruit was a prominent feature of the Exhibition, Grapes and Apples being especially good. In the class for three bunches of black Grapes Mr. Comfort, gardener to G. N. Everett, Esq., Knowle Hall, was deservedly first with full handsome bunches and good berries of Gros Guillaume; Mr. Gilman, gardener to the Earl of Shrewsbury, Ingestre Hall, being an excellent second with medium bunches and fine and well-finished berries of Alicante; Mr. Clark, gardener to Lady Edwardes, Ashbourne Hall, being a good third with the same variety. In the class for Muscats Mr. Gilman was far ahead with superb examples, large in berry and beautifully finished. He was also first in the any other white class with good bunches of Trebbiano, followed closely by Mr. Comfort with White Nice. In the single-bunch classes the same exhibitors took the chief prizes, both exhibiting well. Mr. Freeman, gardener to Z. Walker, Esq., Hall Green, staged the best Pine, a Black Jamaica, weighing 5 or 6 lbs., and a handsome fruit.

Apples were numerous and good, Mr. Gardiner, gardener to S. E. Shirley, Esq., being decidedly the premier exhibitor, securing the first prizes in the gardeners' class for six dishes, the open class for twelve dishes, and Messrs. Cranstons' prize also for twelve dishes. Mr. Bannister, Bristol, was a close second in the last-named class, and Messrs. Mitchinson and Gilman also exhibited well. In the single-dish class Mr. Newell was first with Warner's King, Mr. Gilman being second with the same variety, and Mr. Faulkner, gardener to J. H. Pearson, Esq., Handsworth, with Lord Suffield. The best kitchen Apples staged besides those named were Roundway, Magnum Bonum (highly recommended by Mr. Gardiner), Belle Dubois, Alfriston, Blenheim Pippin, and Yorkshire Greening. The best dessert—Margil, Cox's Orange Pippin, Ribston Pippin, Wyken Pippin, Adam's Pearmain, and Scarlet Pearmain. The prizes for Pears were won by Messrs. Gardiner and Clissold. Some excellent dishes of Mushrooms were staged, Mr. Mitchinson securing the chief prize with splendid produce.

Bouquets were neat and good, the first-prize example in the gardeners' class from Mr. Jones containing *Eucharis*, *Calanthe vestita*, *Bouvardias*, *Pleiones*, and *Gauze Fern*. In the open class Messrs. Pope and Jones were first with a free and good arrangement of choice flowers, Mr. Price following in both classes; but the best bouquet in the Show, though not in competition, was undoubtedly made by Mr. Spinks (Mr. Hans Niemand), and consisted of *Camellias*, *Orchids* (including white *Masdevallias*), pips of pink *Rhododendron* *Princess of Wales*, *Roman Hyacinths*, and three flowers of the "Blue Marguerite," *Agatheæ cœlestis*, and *Ferns*. For this a certificate of merit was awarded, a similar mark of approval being granted to the same exhibitor for a group of plants showing excellence of culture and taste in arrangement, the white *Cyclamens* being of a very superior strain. Certificates were also worthily accorded to Messrs. Cannell & Sons, Swanley, for one of the most splendid collections of *Zonal Pelargoniums* ever seen at any show, and a most attractive stand of *Salvias*, the scarlet and white *Mons. Issanchon* attracting much attention; to Messrs. Perkins of Coventry for charming wreaths and crosses; and to Mr. Holmes of Lichfield for an excellent group of plants. Messrs. Pope & Son had a very attractive stand of *Zonal Pelargoniums*, very small plants, with fine trusses; and Messrs. Richard Smith & Sons contributed a diversified group of variegated shrubs and Conifers. The Show was admirably managed by Mr. Redfern, the Secretary, Mr. Latham, and other members of the Committee; and although the day was not fine there was a large attendance of visitors.

BATH.—NOVEMBER 22ND.

A correspondent sends us the following extract from the *Bath Chronicle*:—

Two years ago, after having ceased to be held for nearly half a century, the exhibition of Chrysanthemums, Primulas, stove and greenhouse plants, cut flowers and fruit, was revived by that energetic local attraction association—the Bath Floral Fête and Band Committee. It was then held at the Pump Room, and was such a success that it was decided not only that a second show should be held, but that more space must be obtained for the display of the exhibits and the accommodation of the large number of visitors. Consequently last year the Assembly Rooms were brought into requisition, and the Show proved a most satisfactory one. The third Show was held at the Guildhall, it being impossible to secure the Assembly Rooms. The Show this year was a good one, and the event may now be considered as well established, and one that we may look forward to with pleasure each succeeding November. The Exhibition was very much better than the two previous Shows. The entries were very numerous and varied, and much difficulty had been experienced, in the small space at command, in displaying the exhibits to the best advantage. The banqueting room, council chamber, and even the vestibule of the Guildhall, were all metamorphosed into so many crowded green-

houses. Most advantage was taken of every available space; and notwithstanding the difficulties of want of room, &c., the plants were tastefully and ingeniously arranged, with a happy combination of colours, while due regard had been paid as much as possible to the requirements of the spectators. The Chrysanthemums were, as a whole, of good quality, notwithstanding the fact that the season has been by no means a particularly favourable one. Upon entering the Guildhall the plant in the vestibule that at once attracted the eye of the visitor was Peter the Great, a magnificent plant shown by Mr. R. B. Cater of this city. This specimen measured 6 feet in diameter and 18 feet in circumference. It was almost apparent to all that this plant was destined to take premier position, and so it proved. Mr. Cater was also a successful exhibitor in other classes. Mr. Thomas Jolly of Oldfield Park took first position in Class 6, and won several other prizes with his fine exhibits. Mr. John Bradner of Bristol was again to the front in many classes. His collection of six plants in magnificent bloom took first honours, thus repeating his success with the same plants at Devizes on Tuesday. The groups of Chrysanthemums were of exceptionally good quality. Primulas were grand, and those best competent to judge considered them as near perfection as any to be found this season. The premier position with this particular plant was taken by Mr. G. Garraway of Swainswick with a fine lot of highly coloured specimens. The cut blooms, bouquets, and outdoor foliage received considerable attention, and deservedly so, from the visitors to the Show. These exhibits were arranged on each side of the council chamber. Among the specialities may be mentioned the blooms of Pansies and Carnations which Mr. H. Hooper of Widcombe Hill exhibited, they being of particularly fine quality. Handsome groups of greenhouse plants were exhibited at each end of the banquetting room by Messrs. Cooling & Son and Mr. Drummond, who in this class took first and second positions in the prize list respectively. On the middle table in the same room were arranged many choice specimens of fruit. The Grapes were the principal feature, the Duke of Beaufort (gardener, Mr. Rutland) and Mr. James Chaffin again keenly contesting for the premier place. His Grace took the first prize with four bunches, consisting two of Muscats and two of Black Alicante. Closely following and taking the second prize were two bunches of Gros Colman and two of Black Alicante shown by Mr. Chaffin. In the class for three bunches of black Grapes Mr. Chaffin showed some well-ripened bunches, which took the first prize, the Duke of Beaufort being next with a lot that were larger, but hardly so well coloured. Mrs. Mellor of Westbury-on-Trym secured the first place for Muscats with some well-finished and highly coloured specimens. The Duke of Beaufort's bunches took the second prize. Apples and Pears were shown in abundance, and of the first quality considering the unfavourableness of the season for these particular fruits.

NORTHAMPTON.—NOVEMBER 22ND AND 23RD.

For eleven years the above Society has been encouraging the cultivation and improvement of the Chrysanthemum, and their efforts have been very successful. On this occasion the spacious Corn Exchange was filled with plants, cut blooms, Primulas, dinner-table decorations, fruit, and vegetables. The general quality of the various productions was satisfactory throughout, and from the taste shown in the arrangements the effect produced was remarkably good. Much credit is therefore due to Mr. Draper, the Hon. Secretary, Messrs. Gulliver, Archer, and Starmer, who worked hard to bring about such a pleasing effect.

The schedule comprised sixty-five classes, four silver cups as prizes of the respective value of five, three, and two guineas, with substantial money prizes as second and third prizes. For six large-flowering plants, for which one of these cups was offered, there were four competitors, the plants of medium size, foliage robust, and well furnished down to the rim of the pots. The plants were trained in free style, somewhat like Roses in pots, which makes the Chrysanthemum look more graceful than when the plants have been subjected to very rigid training. The first-prize collection from Mr. S. Ingram, gardener to W. Butlin, Esq., Duston House, was remarkably good both in foliage and flower. Mr. Woods, gardener to J. Phipps, Esq., Cliftonville, gained second honours, and T. Sheppard, Esq., J.P., the third.

It was hoped by the Executive that the valuable silver cup offered for twenty-four cut blooms would have induced some of the metropolitan growers to contest for it; but as no one outside Northampton entered, the contest lay between two local growers—an amateur (Mr. Fowkes), and Mr. Walter, gardener to Roger Eykyn, Esq. It is to be regretted that no other growers competed, for the cup was a handsome one, and the Executive deserved more exhibitors for such a valuable prize. Another year, if a cup is offered of the same value, there will probably be growers from beyond the radius of Northampton competing for it. However, the two collections staged were extremely good; that to which the first prize was awarded was remarkably even, each bloom being of fair size, neat, and of good form. They comprised such well-known varieties as Queen of England, Golden Empress of India, John Salter, and Princess Teck, and which have been repeatedly named in your reports of other exhibitions. Mr. Walter's collection had a few larger flowers than was in the cup stand, but he had several inferior, and consequently gained the second place. Both collections were remarkably fresh.

For four plants, large-flowering, open only to amateurs, six or

seven collections were staged, some of them highly creditable. Especially was this the case with the collection to which the cup was awarded to Mr. F. W. Henman, Great Houghton; and as we were informed that the grower was a shoemaker, and that he grew and bloomed the whole of his plants without the aid of any glass, we cannot but commend him for the style in which they were finished. The plants were neatly trained, and many of them bore good flowers. We were informed that the way he bloomed them was as follows: On all favourable occasions the plants were stood out of doors by day and brought in again by night, and in bad weather they were placed in the rooms of the house. Mr. Henman was a large prizetaker, and all his plants were grown in this way. Plants of Lady Harding, Mr. Howe, and Chevalier Domage were very creditable examples, and gained first honours in a collection of four single specimens, or for a single reflexed flower. Mr. R. Sear, Cowper Street, and Mr. J. Arnsby, Lower Thrift Street, were other successful amateur growers. Several fairly good plants of Japanese Chrysanthemums were exhibited, both in the classes for six and four; Mr. Green, gardener to Mr. Shoosmith, Mr. Woods, and Mr. Crisp sharing the principal honours.

The cut bloom classes throughout were well filled, and the winning stands contained good flowers; but there were some which did not come up to the customary standard. Especially was this the case in the Japanese forms, for which good prizes were awarded; but as this variety is yearly becoming a favourite we look forward for better and more even collections here another season.

Primulas were extremely well shown, as also were the fruit and vegetables.

WIMBLEDON.—NOVEMBER 23RD.

The annual autumn Exhibition of this Society was held at the Lecture Hall, and both as regards the number and quality of exhibits there was an encouraging improvement on former shows. The hall was well filled, a table down the centre bearing the cut blooms, which numbered about four hundred. These may be said to have been the great feature of the Exhibition. The competition in the various classes for incurved and Japanese blooms was very strong, nine competitors coming forward with twelve incurved and eighteen Japanese respectively. The quality of the flowers shown may be imagined when we state that Mr. C. Gibson, gardener to J. Wormald, Esq., Morden Park, who has been almost as invincible as Mr. Harding, had to take second place for twelve incurved; Mr. Woodgate, gardener to Mrs. Hammersley, Warren House, Kingston Hill, taking first prize with a fine even stand, Alfred Salter, Lord Wolseley (a sport from Prince Alfred), and Princess of Wales being particularly neat. Mr. Strong secured the third prize, his stand being only a point inferior to Mr. Gibson's. For twelve Japanese Mr. E. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher, was an easy first with blooms of superb quality, his Triomphe de la Rue de Chatelet, Boule d'Or, Thunberg, and Comte de Germany were especially fine. Mr. Gibson, who was second, had grand flowers, but as may be imagined his best blooms were past. Mr. Strong was third, his blooms being very fresh but smaller than the preceding. Mr. Strong, Mr. Woodgate, and Messrs. Mahood & Son, Windsor Nurseries, Putney, were placed in the order named for six incurved blooms; and for six Japanese Mr. E. Beckett was again first, Mr. Strong and Messrs. Mahood & Son on this occasion running him very close.

There were three entries for groups. Mr. Newell, gardener to E. Saunders, Esq., Fairlawn, Parkside, Wimbledon, being adjudged the premier award for a tastefully arranged and well-flowered group. Messrs. Mahood & Son and Mr. G. Stevens, St. John's Nursery, Putney, were second and third, their blooms being not nearly so fresh as those in the first-prize group. Amateurs' groups were well shown. Mr. G. Dove, Hartfield Road, and Mr. E. Collins, Pelham Road, Wimbledon, taking first and second places. There were several entries for six cut blooms in the amateurs' division; Mr. H. A. Rolt, Maud Villas, Mr. E. Collins, and Mr. A. Moore, High Street, being placed in the order named.

Among the groups not for competition, Mr. J. Lyne, gardener to A. Schlusser, Esq., Belvedere, had a grand display on the centre of the platform, about thirty plants of Calanthes in the best health being included in the group. Mr. Lyne also sent six specimen Pompons, which were much admired. In the class for three trained specimens, large-flowering varieties, Mr. J. Bentley, gardener to Sir T. Gabriel, Edgecombe Hill, was first with creditable examples of Peter the Great, Dr. Sharpe, and John Salter. Messrs. Mahood and Son were second (a pyramid of Mrs. G. Rundle being cleverly trained) and Mr. G. Stevens third. Mr. Wood, gardener to S. Nicol, Esq., Curry Hill, was first for Primulas; Mr. Beckett second; and Mr. Elliott, gardener to the Rev. C. J. Wynne, Wimbledon School, third. Mr. Beckett was also first for table plants.

Among the miscellaneous exhibits were two fine groups shown by Mr. D. S. Thomson, The Nursery, Wimbledon, and Mr. Runnacles, gardener to Mrs. Schuster, Cannizaro; fine bunches of Grapes and a collection of fruit by Mr. Alderman, gardener to C. Czarnikow, Esq., Mitcham; six Coleus, six double Primulas, and a model flower garden by Mr. Logan, florist, Copse Hill; boxes of large and small-flowered Anemone Chrysanthemums by Mr. Gibson; blooms of Lord Wolseley, the bronze sport from Prince Alfred, by Mr. Orchard, Coombe Leigh; a stand of large-flowered Anemones by the same exhibitor; a stand of Japanese blooms by Mr. Beckett; a collection of Apples by Mr.

Haines, gardener to Mrs. Jones, Clock House, West Hill; a box of Pears and collection of fruit by Mr. Goodyear, gardener to W. Vant, Esq., Grove House; a stand of twenty-four "undressed" incurved blooms by Mr. G. Harding, gardener to T. D. Galpin, Esq., Putney Heath; and a model bee hive by Mr. Smith, Cyprus Cottage, Wimbledon.

STAINES.—NOVEMBER 23RD.

Presumably with a similar object in view, and with similar chances of success to the Walton and Weybridge Society, a Chrysanthemum Society has this year been formed on the Middlesex side of the Thames, embracing the districts of Staines, Egham, Ashford, and Laleham, and the efforts of the projectors have been so far successful that the first Exhibition, held on Thursday last in the Staines Town Hall proved, though of moderate extent, sufficiently satisfactory to encourage hopes of considerable progress in future years. H.R.H. Prince Christian accords the Society his patronage as President; the Vice-Presidents include more than a dozen of the leading gentlemen in the neighbourhood, while a strong and practical Committee, with the courteous and experienced Secretary, Mr. T. J. Rawlings, evidently intend rendering their show a credit to the district. The first exhibition of a society like this can be considered as little more than an experiment, and it is only when two or three have been held that the capabilities of the growers can be fully perceived and provided for accordingly in the schedule. Some little time, too, is needed to give the local growers confidence, and induce those who have hitherto been non-exhibitors to enter the lists with their neighbours and test the respective merits of their productions side by side. It was not, therefore, to be expected that the competition would be very keen, especially as the prizes were moderate—indeed, when the schedule was first issued the amount of the prizes could only be stated in a few classes. Though, however, the contributors were not so numerous as they may be expected to be another year, yet the plants and blooms were sufficient to fill, without crowding, the commodious hall devoted to the Show, and these being arranged with excellent taste constituted an effective display.

The groups of Chrysanthemums formed the leading feature, eight being placed round the hall, four on each side. The class was provided for, a group arranged for effect in a half-circular space 10 feet by 5 feet, the quality of the plants and blooms, as well as the style of arrangement, being taken into consideration. Mr. Thatcher, gardener to H. L. Bunnell, Esq., Thorpe, secured the chief honours with a most meritorious group both in arrangement and in the quality of the plants and blooms composing it. An even sloping bank was formed, the blooms being abundant, large, and the colours clear and bright. Dwarf healthy plants formed the margin and imparted a suitable finish to the appearance. Mr. Hutchings, gardener to E. H. Ashby, Esq., Westbourne House, Staines, followed with a free graceful arrangement, his plants being most profusely flowered, especially prominent being *Sœur Melanie* and *Julie Lagravère* in fine condition. Mr. H. Craile, gardener to G. F. Yeo, Esq., The Hythe, Staines, took the third position, having fresh healthy plants, and fairly well flowered. Mr. H. Jemmett, gardener to H. C. Paice, Esq., Egham, and Mr. G. Riddick, gardener to W. Paice, Esq., The Limes, Egham, were awarded the fourth and fifth prizes. Two handsome groups not in competition at the sides of the proscenium were also noteworthy, both containing remarkably well grown plants. That from Mr. McNichol, gardener to W. Burchell, Esq., Laleham, comprised freely flowered examples of Chrysanthemums, with a pretty margin of Roman Hyacinths and Selaginellas alternately. Mr. Sims, gardener to W. B. Eastwood, Esq., had a greater diversity of plants in his group, including besides Chrysanthemums, well-grown *Bouvardias* and *Poinsettias*, with Palms, Ferns, and similar fine-foliage plants.

In other classes for plants several collections of vigorous neatly trained specimens were staged. Mr. E. J. Sims, gardener to J. N. Pimm, Esq., The Mansion, Staines, had the best four standards, most creditable examples of *Fair Maid of Guernsey*, *St. Patrick*, *Venus*, and *Refulgence*, the heads even and the blooms good. Mr. Craile followed with smaller but praiseworthy specimens. For a pair of standards Mr. J. Cox, gardener to J. F. Mieville, Esq., Duneroft, Staines, won the premier prize with *Mrs. G. Rundle* and *G. Glenny*, neat, healthy, and well flowered; Mr. Jemmett taking the second place. For the best single specimen standard Mr. Thatcher took the lead with *G. Glenny* in fair condition, Mr. Riddick following closely with *Her Majesty*. Mr. Sims had a neat pair of standard Pompons, *St. Michael* and *Mr. Murray* being the varieties.

Cut blooms were fairly represented, as, though they were not large, they were mostly neat and compact, fresh and bright. In the open class for twenty-four incurved Mr. Thatcher secured the chief prize with a creditable collection; Mr. Gray, gardener to Griffith Thomas, Esq., Park House, Englefield Green, taking a similar position in the district class. Mr. Hutchings exhibited the best twenty-four Japanese, and Mr. Riddick the best twelve, all good blooms. In other classes Messrs. Cox, Thatcher, Hutchings, Sims, and Riddick were the prizetakers.

Miscellaneous plants comprised some good examples of Zonal Pelargoniums, Primulas—the first-prize collection of the former from Mr. Sims being extremely healthy—*Vesuvius*, *Henry Jacoby*, and *Wonderful* being represented by vigorous specimens flowering most profusely. Primulas and Cyclamens were well shown by Messrs. Thatcher, Riddick, and Jemmett. *Mignonette* was also largely shown, the leading collections from Messrs. Riddick and Spring-

thorpe comprising neat specimens, healthy, compact, and freely flowered.

Fruit, including Grapes, Apples, and Pears, were contributed by Messrs. W. Mareham, gardener to the Countess de Morella, Virginia Water, Sims, Hutchings, and Thatcher, who won the chief prizes. Vegetables were also fairly represented, Messrs. Springthorpe, Belcher, and Thatcher securing the prizes.

Messrs. Smith & Larke, Kensington, contributed some ornamental china and glass stands filled with flowers, and tastefully arranged on tables at each end of the hall.

THE LIVERPOOL HORTICULTURAL ASSOCIATION'S SHOW.

FRIDAY, NOVEMBER 24TH.

It was unfortunate for the above Society in many respects that the Exhibition had to be postponed for a few days on account of the Assizes. It was very disappointing to several strangers who travelled long distances to see the Show on Tuesday and returned without seeing it, while many exhibitors were much inconvenienced by the alteration of the date. Notwithstanding this drawback, however, and the drenching rain which fell at intervals during the day, the attendance was good, and the Show, as far as the exhibits were concerned, was a great success, and undoubtedly superior to the two previous shows held by the Society. There was a falling-off in some of the classes, especially those devoted to stove and greenhouse plants, although the *Crotons* staged by Mr. W. Mease were wonderful examples of cultivation. The Chrysanthemum plants were not so good as usual, but the incurved blooms were magnificent. The blooms of Japanese varieties showed a marked improvement in both quality and quantity over past years. Some one thousand blooms were entered for competition, and out of that number 886 were staged with scarcely a bad flower amongst the whole.

Chrysanthemums in Pots.—These on the whole were scarcely so fine as on previous occasions. This refers principally to the closely trained large-flowering varieties, but the Pompons shown by Mr. C. Finnigan were superb, and the same applies to the pyramids. In the class for six large-flowering kinds Mr. C. Finnigan, gardener to W. Burnyeat, Esq., Huyton, was the chief prizewinner with *Mrs. Dixon*, *Prince of Wales*, *George Glenny*, *Hero of Stoke Newington*, and *Golden Empress of India*; Mr. Gowan, gardener to J. Cunningham, Esq., Moseley Hill, was the other only exhibitor. For four plants Mr. S. Whitfield was first, and Mr. C. Finnigan second best. The last-named exhibitor was first in the class for six Pompons, and staged very fresh profusely flowered plants of *Mrs. Hutt*, *White* and *Golden Cedo Nulli*, *Aigle d'Or* good, and *St. Michael*. Mr. S. Whitfield was the other competitor. For four plants the same exhibitor was again first with similar varieties, except one named *Snowball*, a pretty small pure white-flowered variety. Messrs. J. Hurst and W. Bustard were placed equal third. For one standard (trained) Mr. E. Green was first with a good specimen of *Mrs. Dixon*. The same exhibitor and Mr. Gowan were the prizetakers for one pyramid. Both staged remarkably neat examples.

Cut Blooms.—Incurved varieties were the feature of the Exhibition, and the blooms throughout the various and numerous stands were of large size and substance, possessing a depth and breadth of petal seldom seen, combined with good form and fresh colour. The competition was in many instances very close, more especially in the class for twenty-four blooms. There were three exhibitors. Mr. F. Roberts, gardener to W. D. Holt, Esq., West Derby; Mr. G. Mease, gardener to W. Nicol, Esq., Aigburth; and Mr. T. Leadbetter, gardener to R. N. Dale, Esq., Bromborough Hall, were the prizetakers in the order named. The first and second stands were so close that Mr. Roberts only secured his position by one point, his weakest bloom being *Queen of England*. This box contained grand blooms of Mr. Howe, *Golden Empress*, *Empress of India*, *Incognita*, *Princess of Wales*, Mr. Bunn, *Mrs. Heale*, Mr. Cullingford, *Jardin des Plantes* very fine, *Barbara*, *White Venus*, *Hero of Stoke Newington*, *Refulgens*, *Princess of Teck*, *Bronze Jardin des Plantes*, and *White Beverley*. Mr. Mease had grand flowers of Miss M. Morgan, *Mrs. Halliburton*, John Salter, *Emily Dale*, *Novelty*, *Queen of England*, *Princess of Wales*, *Mrs. Heale*, and *Hero of Stoke Newington*. Mr. Leadbetter had a grand bloom of *Eve* and Mr. Howe. For eighteen blooms there were six exhibitors, and the competition was again similarly close. Mr. J. Jellico, gardener to F. H. Gossage, Esq., Woolton, obtained the premier award, having splendid examples of *Pink Venus*, *Lady Slade*, Mr. Bunn, *Princess of Wales*, *Empress of India*, and several others, the same as those named in the previous class. Mr. F. Foster, gardener to J. Brancker, Esq., Wavertree, second with neat but rather flatter blooms. Mr. J. Warrington, gardener to T. Bright, Esq., Aigburth, was a good third. In the class for twelve blooms, from which exhibitors in the two previous classes were excluded, there was great competition. Mr. Brantingham, gardener to S. Still, Esq., Cloughton, took the lead with remarkably fine blooms, followed closely by Mr. G. Burden, gardener to G. Cockburn, Esq., Oxtou; and Messrs. W. Todd, gardener to J. W. Cropper, Esq., Aigburth; and R. G. Waterman, gardener to A. Tate, Esq., the last two being placed equal third. In the corresponding class for twelve blooms the prizetakers were Messrs. T. Leadbetter, G. Mease, Foster; Mr. F. Roberts, an extra prize, five competitors staging blooms. Altogether this was the finest exhibition of incurved flowers we have ever seen.

Japanese kinds were more numerous and superior to those exhi-

bited at the Society's previous shows, but there is still room for improvement. In the class for eighteen varieties Mr. G. Mcase was just first with a grand stand of blooms, having Curiosity fine, Fair Maid of Guernsey, M. Ardene, Elaine good, Soliel Levant, The Khedive,

Criterion, Madame C. Andigier, Apollo, Bouquet Fait, and Ethel. Mr. F. Roberts was a close second, having good blooms of Bronze Dragon, Alba plena, Hiver Fleur, and Bismarck. Mr. W. Wilson, Gateacre, third with small but very neat flowers, La Nympe,



Fig. 84.—NARCISSUS ALBICANS. (See page 501.)

Striatum, and Exposition de Toulouse being very good. Mr. J. Jellico took the lead in the class for twelve blooms with similar to those already mentioned. Mr. Brantingham and Mr. R. G. Waterman were

the remaining prizetakers, the competition being exceedingly close, four collections being staged.

For twelve Anemones, not less than six varieties, Mr. Jellico was

first with good flowers of Gluek, Bijon, Lady Margaret, Madame Goderaux, Louis Bonamy, and Aequisation. The same exhibitor was first also for twelve reflexed flowers, showing King of Crimsons in grand condition, Lilac and Golden Christine, Chevalier Domage, Dr. Sharp, and Mrs. Forsyth. Mr. A. R. Cox was second with smaller blooms, the last-named exhibitor being first for twelve Pompons, not less than six varieties to be shown, with foliage and stems as cut.

Stove and Greenhouse Plants.—In the class for six plants, not less than three in flower, there were only three competitors. Mr. W. Mease, gardener to C. W. Newmann, Esq., Wyncote, Allerton, was well ahead with grand examples—*Centropogon Lucianus* about 7 feet through, the best specimen of this plant we have ever seen exhibited. Mr. A. R. Cox, gardener to W. H. Watts, Esq., Allerton, second, showing a good *Croton angustifolius*; and Mr. E. Thrupp, gardener to J. Walmsley, Esq., Wigan, third. For four plants, not less than two in flower, the same exhibitor was again first with grand *Crotons Williamsi* and *majesticum*, highly coloured and about 6 feet through, the flowering plants being a large pot of *Calanthe Veitchii* and *Azalea amena*. Mr. J. Hurst, gardener to W. B. Bowering, Esq., second, his best plant being *Phoenix rupicola*. For three Palms or Cycads there were only two exhibitors. Mr. Thrupp took the lead, followed closely by Mr. S. Whitfield, gardener to J. T. Cross, Esq., Beechwood, Aigburth, second. For one plant the last-named exhibitor was first with a grand specimen of *Kentia australis*, followed by Mr. E. Thrupp. *Epiphyllums* were good and profusely flowered. Mr. P. Barber, gardener to Mrs. Barnsley, Aigburth, took the lead in the class for three plants, followed by Mr. J. Vaughan, gardener to R. Coltart, Esq., and Mr. J. Bustard, gardener to J. Lewis, Esq., in the order named. For one plant the competition was keen. Mr. Barber and Mr. E. Green, gardener to J. Woolwright, Esq., Aigburth, were placed equal first. Messrs. Vaughan and Thrupp were the remaining prizetakers.

Primulas were excellent, seven exhibitors staging for the prizes offered for six plants. Mr. Brown, gardener to G. Webster, Esq., Upton, was first with the most compact, well bloomed, and good coloured specimens; Mr. E. Green, second; and Mr. J. Phythian, gardener to D. Walker, Esq., Forest Lawn, West Derby, third. Mignonettes, as usual, were good; Mr. W. Evans, gardener to Mrs. Lockett, took the lead with well-grown standard plants, the other prizetakers being Messrs. J. Hurst and Bustard.

Table plants were shown in the best possible condition, the plants being very small and very neat, especially the first-prize collection of six plants staged by Mr. G. Park, gardener to R. A. Farrington, Esq., Wigan. His best plants were *Croton angustifolius*, *Pandanus Veitchii*, *Geonoma gracilis*, and *Dracaena Guilfoylei*. Mr. S. Agnew, gardener to Mrs. Watts, was a close second, and Mr. E. Thrupp a good third. Mr. E. Green took the lead for four Poinsettias, and Mr. Phythian for good pans of Roman Hyacinths.

Ferns.—There were only three exhibitors in the class for six stove and greenhouse varieties. Mr. J. Stephenson, gardener to Mrs. Horsfall, was well first, showing well *Adiantum excisum* nearly 4 feet through, *A. formosum*, *A. farleyense* good, and a grand *Davallia Mooreana*. Mr. J. Gore, gardener to T. Holder, Esq., second with good plants, having a very fine *Cibotium regale*; and Mr. A. R. Cox the remaining prize. Mr. J. Gore took the lead for one Tree Fern with *Dicksonia antarctica*; Mr. G. Leadbetter, gardener to T. S. Timmis, Esq., Huyton, second with the same variety; and Mr. J. Phythian third with *Alsophila australis*.

Oreheids were well and numerous shown for the prizes offered in the four classes devoted to them, and few, if any, exhibits in the hall attracted greater attention. For three plants, distinct, Mr. J. Wilson, gardener to J. E. Reynolds, Esq., Sandsfield Park, West Derby, was first with well-flowered plants of *Dendrobium heterocarpum*, *Odontoglossum Alexandræ*, and *O. Londesboroughianum*. Mr. W. Moss, gardener to W. Holland, Esq., and Mr. J. Edwards, gardener to S. Walker, Esq., Liverpool, were placed equal second, the former showing well *Lælia anceps* and *Odontoglossum Halli*, and the latter *Oncidium crispum* and a well-flowered plant of the lovely *Masdevallia Tovarense*. For one plant Mr. J. Edwards took the lead with a good variety of *Odontoglossum Alexandræ* with fourteen flowers, followed by Mr. J. Wilson and Mr. Gore, the former showing the same variety. For two *Calanthes* Mr. W. Moss was first with grand pots, and Mr. J. Stephenson for one plant.

Bonquets were not numerous, but those shown were good. In the nurserymen's class Mr. C. Rylance, Ormskirk, took the lead, followed by Mr. G. Downes, Florist, 97, Lodge Lane, Liverpool. In the corresponding class Messrs. J. Agnew, G. Leadbetter, and W. Evans were the prizetakers in the order named.

Mr. J. Phythian was first in the class for one epergne or vase for table decoration, but these exhibits need no further notice, the whole being too heavy.

FRUIT.—The display of fruit was large and remarkably good considering the season. In the open class for twelve dishes, distinct, Mr. J. H. Goodacre, Elvaston Castle, Derby, took the lead with two fair Pines; Gros Colman Grapes, large berries and well coloured; Gros Guillaume, well coloured but small berries; and the same applies to the bunch of Alicante, while Mrs. Pince and Golden Queen were good; a small fruit of Read's Hybrid Melon, Beurré Diel and Glon Moreau Pears, and two good dishes of Apples. Mr. Hannagan, gardener to R. C. Naylor, Esq., Hooton Hall, followed closely, two collections only being staged. There were four exhibitors in the

class for six dishes, Pines excluded. Messrs. Hannagan, W. Mease, and W. Evans were the successful exhibitors, the former showing good Muscat of Alexandria Grapes, Beurré Diel and Duchesse d'Angoulême Pears, with King of the Pippins and Ribston Pippin Apples. The second exhibitor had good Durondeau Pears and Grapes. The last-named exhibitor had good Pears and Apples, but the Grapes were inferior to those in the first and second collections. For two bunches of black Grapes, Muscat flavour, Mr. J. Kelley, gardener to Messrs. Reynolds & Co., Garstang, was first with Mrs. Pince, good bunches, but rather defective in colour; Mr. W. Roberts, gardener to T. Harrison, Esq., Gateacre, second; and Mr. J. Stephenson third, both staging the same variety, but smaller in the bunch. There were fourteen competitors in the next class, and Mr. F. Ferguson, gardener to Mrs. Patterson, was first for two bunches of black Grapes with Gros Guillaume; Mr. W. Lewis, gardener to T. Hardy, Esq., Kimberley, Notts, with Gros Colman with very fine berries and grand colour; Mr. W. Wilson, Gateacre, the remaining prize with the same variety. For two bunches of white Grapes, Muscat flavour, Mr. G. Middleton, gardener to R. Pilkington, Esq., Rainford Hall, was first with well-finished Muscat of Alexandria; Mr. W. Roberts second; and Mr. F. Elcock, gardener to W. H. Dixon, Esq., Hooton, third. There were seven exhibitors. In the class for two bunches, any other white, there were six lots staged. Mr. Wallis, Keele Hall, first with grand well-coloured examples of Golden Queen; Mr. W. Mease second with White Tokay; and Mr. J. Hurst third. For four varieties of Grapes, distinct, there were eight competitors. Mr. W. Lewis secured the premier position with Gros Guillaume, large bunch and well-coloured berries; Gros Colman, good; Alicante, and Muscat Hamburgh. Mr. J. Wallis a good second, showing smaller bunches but well finished; Mr. C. Finnigan taking the other award.

In the open class for eight dishes of dessert Pears Mr. Goodacre staged a very fine collection, which deservedly placed him first. The varieties were Gross: Calabasse large and fine, Marie Louise, Beurré Diel large, Beurré Clairgeau, Doyenné du Comice, Duchesse d'Angoulême, Napoleon, and General Todtleben. Mr. Hannagan second, having good dishes of Glon Moreau and Hacon's Incomparable. Mr. J. Lowndes third, having a good dish of Easter Beurré. Mr. W. Mease was first in the corresponding local class for four dishes with Marie Louise, the best dish of this variety in the Exhibition, Beurré Bachelier, and Beurré Diel; Messrs. Hannagan and J. Lowndes second and third respectively. For one dish of ripe fruit (local) Mr. W. Evans was first with Beurré Diel, Mr. Hannagan second with Marie Louise, and Mr. Mease third with Winter Nelis, sixteen dishes being staged. In the open class for one dish of stewing Pears Mr. Goodacre was first with large and fine fruit of Catillac; Mr. J. Kelley followed with the same variety, and Mr. W. Gardiner, gardener to S. E. Shirley, Esq., third.

Apples were remarkably good throughout. There were six competitors in the class for six dishes of dessert kinds (open), Messrs. Hannagan, Gardiner, and Goodacre being the successful exhibitors, the first-named showing Blenheim Pippin, King of the Pippins, Golden Reinette, Fearn's Pippin, and Ribston Pippin. The second collection containing grand dishes of Adams' Pearmain, Cox's Orange Pippin, and Baxter's Pearmain. In the local class for three dishes Mr. S. Whitfield was first with Wyken Pippin, Blenheim Pippin, and Ribston Pippin; Messrs. W. Evans and Hannagan second and third. For one dish (local) the prizetakers were Messrs. Foster, Lowndes, and S. Whitfield. For eight dishes of culinary kinds (open) Mr. Hannagan was first with grand dishes of Alfriston, Warner's King, Dumelow's Seedling, Greenup Pippin, Hawthorndean, Yorkshire Greening, and Cox's Pomona, good. Mr. W. Gardiner second, having Cox's Pomona, Blenheim Pippin, and Dumelow's Seedling very fine. Mr. Goodacre was awarded the remaining prize. Five collections being staged. In the local class for four dishes Mr. T. Johnston, Higher Bebbington, was first with Warner's King very large, Alfriston, King Apple, and Rylance's Surprise very good; Mr. Hannagan being second, having a good dish of Mère de Ménage. For one dish the prizetakers were Messrs. Johnston, Whitfield, and Evans.

Miscellaneous Exhibits.—Mr. Swan, gardener to W. Leech, Esq., Oakley, Fallowfield, contributed plants of a new hybrid *Dendrobium* named *Leechianum*, raised between *D. nobile* and *D. heterocarpum*. This variety had flowers of a very large size and were very striking, for which a first-class certificate was awarded. Messrs. R. P. Kerr & Sons, Aigburth Nursery, contributed a very fine table of small decorative plants, including Palms, Chrysanthemums, Ferns, Roman Hyacinths, double Primulas, Ericas, and Cyclamens; the plants of the latter being fully 18 inches through, and well flowered. The Horticultural Company (John Cowan), The Garston Vineyard, a similar group, with choice *Crotons*, *Dracænas*, *Nepenthes*, *Calanthes* of sorts freely intermixed. Messrs. Cannell & Sons, Swanley, Kent, a quantity of Zonal Pelargonium blooms in grand condition, also a box of *Salvias*, which was much admired, the varieties being *Bethellii*, *splendens*, *Hoveyi*, *rutilans*, *Mons. Issanchon* and *Pitcheri*. The above collections were very highly commended by the Judges. Messrs. J. Dickson & Sons, Newton Nurseries, Chester, sent a box of *Euonymus radicans variegata* Silver Gem (new), *Cupressus Lawsoniana* Silver Queen (new), also a collection of *Pernettyas*. Mr. C. Rylance, Ormskirk, a collection of Apples; and Mr. W. Lewis a large highly finished bunch of Gros Guillaume Grape, for which an extra prize was awarded.

The Chairman, Mr. Richardson, Curator, Botanic Gardens, the Secretary, Mr. Glover, and the Committee are to be congratulated upon the able and thoroughly successful manner in which the arrangements of this fine Exhibition were carried out.

SILKWORMS AND SILKWORM REARING.—20.

(Continued from page 461.)

AMONGST our native insects which have become more rare of late is the handsome moth to which has been given the appellation of the "Emperor" (fig. 85), although it is by no means the largest British species of the tribe, nor, indeed, can it be said to be the most beautiful. Yet this moth, *Saturnia Carpini*, certainly does offer to the eye a pleasing combination of colours, its eye-like spots suggesting its kinsmanship to the large foreign Bombyces that have recently passed under our notice. It is to heaths and patches of straggling wood that the caterpillar (green, with black or pink warts), has generally been attached, and the clearing of ground for cultivation during the last fifty years has not favoured the increase of *S. Carpini*, which is now confined to a few localities. The cocoon is of silk, and rather curiously shaped, but it could not be turned to any use; I doubt whether it could even be carded.

This insect I mention, however, because the larger *Saturnia Pyri*, native of some districts of France and of other countries with a warmer climate than ours, has been placed amongst the possible producers of a textile silk. In bulk it far surpasses our "Emperor" (fig. 85), and, as may be imagined, the brown or grey of the wings shows up strikingly the complex spots by which they are adorned. The caterpillar or silkworm is very large, of a light green tint, studded over with dark blue tubercles, from each of which rise seven radiating hairs. It is not difficult to rear, feeding upon Apple, Pear, Plum, Ash, or Elm during July and August, and forming its cocoon in the latter month or September. This is of brown silk, in texture very strong, which might be made useful by carding it if produced in sufficient quantity. The moths emerge to lay their eggs in May or June, there being but one annual brood. A few attempts have been made to keep these upon the Plum in the open air, but our cold nights are rather against them, and in spite of their hairs they also fall a prey to the irrepressible sparrows. One observer has noted that the birds seem to like these foreigners quite as well as our native caterpillars, excepting indeed *A. Cynthia* and *Prometheus*, which were regarded with dislike, seemingly, by birds, though they did not escape spiders. These destroy some seasons many young caterpillars of various species.

There is an insect named *Ceratocampa imperialis* which has been placed amongst the silkworms. It is an American species, and in its moth state remarkably beautiful, and of interest to those who experiment in caterpillar-rearing, though the cocoons are not of ascertained value. In expanse of wing it is from 4 to 6 inches, the males being smaller but more showy. The colouring is unlike that of the moths familiar to us in these islands, for the yellow ground is covered with small deep brown dots, and there are numerous spots or patches of red, with a purplish gloss upon them. It had been stated in the "Naturalist's Library" that the rare caterpillars of this species are seldom reared successfully, and if they reached maturity they generally died soon after entering the chrysalis stage; but M. Wailly of Clapham reports favourably as to those he had in 1881. Eggs laid during July produced young worms early in August; these were kept in a house under glass, but well ventilated. Their growth being slow would account for their passing through as many as six changes of skin, two beyond the usual number amongst silkworms, and it was about the middle of October when they ceased feeding. M. Wailly describes the caterpillars as varying much in colour, from yellow to nearly black; they exhibit five horns, which are studded with sharp points and forked. As the caterpillars increase in size these horns become shorter; they are not apparently used for weapons of offence. In habit this insect is not unsociable while in the larval stage, since M. Wailly remarks that "they crawled over each other's backs without showing the least sign of spite or animosity, even when they were in sleep, in which case larvae are generally very sensitive and irritable." The cocoon is made beneath the surface of the earth, and the chrysalis reposes therein until the following summer.

In addition to what has been previously stated with reference to *Attacus Yama Mai*, the Japanese silkworm of the Oak, and to *A. Pernyi*, the mountain species of North China, the following facts should be here noted ere concluding. A rather successful method of treating the newly hatched Yama Mai worms has been that of placing them under large bellglasses having a few openings in the dome, the food being kept fresh by putting small branches of Oak into saucers full of sand covered with paper. Any that may drop off the branches can without much difficulty be removed from the paper, and if kept out of the direct sunshine the leaves remain undried for several days. In this arrangement the branches must necessarily be cut short, but when these silkworms are fed upon branches plunged in water they must be cut long, otherwise the foliage would absorb some water into its natural juices, and this proves highly injurious to the worms; yet, as already shown, they do not object to—in fact, rather like—moisture apart from the leaves. The Oak being a somewhat backward tree in most seasons, in anticipation of the hatching-out of Yama Mai some naturalists have placed young Oaks in pots, and by protecting them through the winter have brought them into leaf rather early, putting the worms upon them with a covering of gauze. But forcing Oaks by artificial heat has not been found to answer.

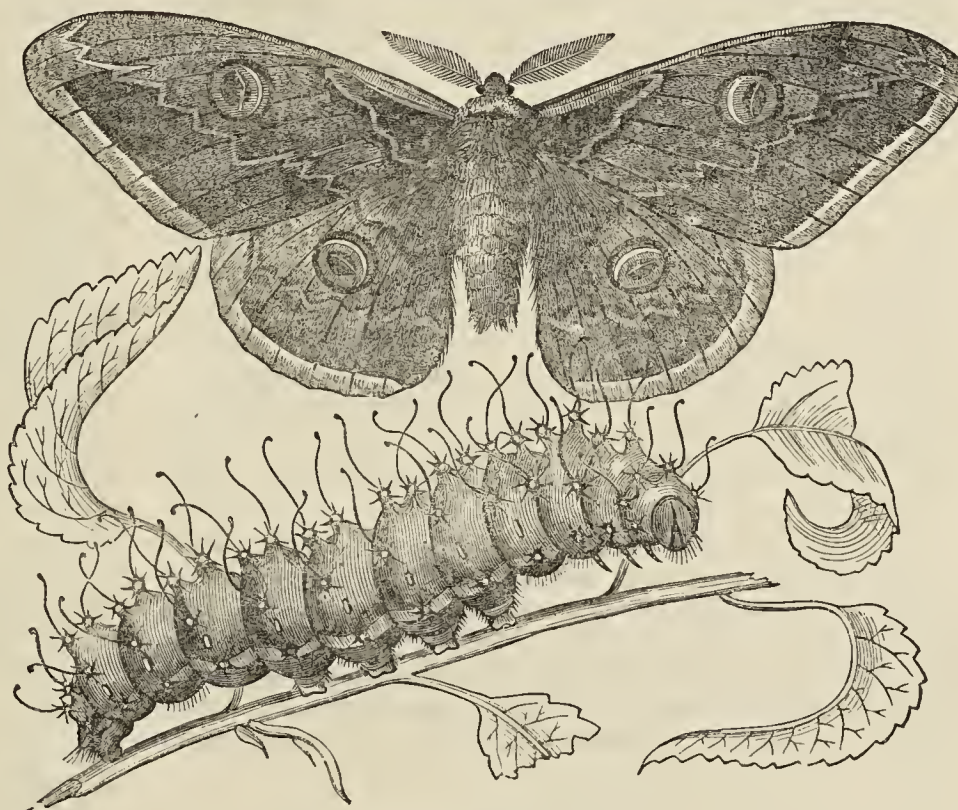


Fig. 85.—*Saturnia Carpini*.

There is a risk, however, of losing some through the getting chilled if the worms are kept out of doors before June is well advanced.

Attacus Pernyi was reared several times in the open air some years ago, but the summer of this and of last year did not seem congenial to the worms when they were exposed upon Oak bushes to the changes of the weather. Near Colchester about ten years since a naturalist liberated a large number of fertile females in a somewhat retired wood. Subsequent investigations disclosed a few of the silkworms there, the progeny of these, and several were left upon the Oaks to attain their full size. No moths were obtained afterwards, or worms discovered the next season. The young *Pernyi* do not hatch so soon as Yama Mai—generally towards the end of June or in July, when there is abundance of Oak in good condition, a circumstance much favouring their rearing with success, and they evidently suffer little from diseases.

Hereafter it is possible that much may be attempted in the way of crossing one species with another. As yet such experiments are in their infancy. *Attacus Roylei*, the Himalayan species of silkworm, also a feeder upon Oak, shows affinities for *A. Pernyi*, and a hybrid breed has been obtained from the two. The worms have all the good qualities of the North China parent, and the cocoon is preferable to that of *A. Roylei*, where so much of the strength of the spinner is expended upon the loose outer cocoon that the inner is thin and poor. From the hybrid has been got a compact cocoon and of better colour than that of *A. Pernyi*. We may yet be able to pair some species with the Japanese *A. Yama*

Mai, which will render this excellent yielder of silk less difficult to rear in confinement.—J. R. S. C.



KITCHEN GARDEN.

Forcing Department.—Attention will now be needed to ensure a liberal supply of Asparagus, Seakale, and Rhubarb. For Asparagus, pits capable of holding sufficient fermenting material to preserve for some time a temperature of from 70° to 80° are useful, and the pits should also be furnished with hot-water pipes, and have moveable lights, so that at suitable times an abundant supply of fresh air can be afforded, as without this the flavour will be very inferior. In order to have a supply at Christmas a bed composed of leaves and stable litter should be made now and trodden down firmly. Place 2 or 3 inches depth of light rich soil on the surface, and at the temperature above indicated the roots should be introduced, spreading them out and mixing light soil amongst them. Water with tepid water, and cover the crowns with finely sifted spent tan.

Seakale in quantity can be forced in this way, but a lower degree of heat is needed than for Asparagus, and light must be excluded so as to secure well-blanching heads. This with Rhubarb is most readily forced in the Mushroom house; fresh roots being introduced at intervals according to the demand will afford an uninterrupted succession.

Where Chicory is used for salads roots should be introduced to the Mushroom house, potting them in large pots, or planting in light rich soil kept moist by watering as needed with tepid water. The tops should be cut off an inch from the crown, but not so close as to injure the growing point. It is necessary that light be excluded to secure well-blanching heads.

Make an occasional sowing of French Beans according to the space at command, earthing up those sufficiently advanced, and supply weak tepid liquid manure to those in flower and podding. Keep them near the glass, and ventilate freely when the weather is favourable. Mustard and Cress must be sown at intervals according to the demand. Ventilate freely frames which contain Radishes, Cauliflowers, Lettuces, and Endive, tying up or covering the last named to effect the blanching.

FRUIT HOUSES.

Peaches and Nectarines.—The house containing the earliest trees having been closed artificial heat may now be commenced, turning on the heat in the morning for an hour or two so as to raise the temperature to 50°, opening the house at that temperature, allowing a free circulation of air through the house, but not to lower the temperature, allowing an advance of 10° to 15° from sun heat, and close early in the afternoon, damping the trees at the same time if the weather be bright. Syringing the trees should only be resorted to on fine mornings and afternoons. Fire heat will only be necessary at night to keep the temperature from falling below 40°. An application of tepid liquid manure to the roots of weakly trees in inside borders will greatly assist the swelling of the buds and strengthen the blossom.

The lights should be placed on the house intended to be started early next year, and the ventilators kept open day and night excepting when the temperature falls to 40°, when they may be closed. As the trees become denuded of foliage in the late houses thoroughly cleanse the house, and if the trees are infested with scale it may be removed by syringing with water at a temperature of 160°. Remove the loose surface soil down to the roots, and supply fresh loam to which has been added a sprinkling of half-inch bones and some charred refuse. See that there is not any deficiency of moisture at the roots of trees in inside borders, for if allowed to become dry now it is likely the bloom buds will fall when they should be swelling. Keep the houses as cool as possible by free ventilation.

Vines.—In houses that were closed early in the month the Vines are now starting, and if the terminal buds are taking the lead the stems should be brought down to a horizontal position or below it. The parts that are not breaking freely should be syringed with tepid water three or more times a day, and when they have made an inch or two of growth the rods or canes should be secured in proper position. Turn over the fermenting material and add some freshly prepared material to be worked in as the turning proceeds. The inside border must be examined down to the drainage, and if any of the soil be dry repeated waterings of weak liquid manure or water at a temperature of 90° must be given until the whole of the border is thoroughly moistened through. The outside borders must, if they have been covered with fermenting material, be attended to so as to maintain the heat in them at 80° to 90, and if lights or shutters be placed over all but not resting on the material, with a sharp incline to the front to throw off the water, it will add considerably to the endurance and regularity of the heat in the fermenting materials. When the weather is mild admit air for a short time. The night temperature should be kept at 60°, falling 5° on cold nights, 65° in the daytime on cold and dull days, 5° more in mild weather, and 10° rise from sun heat.

Houses of Vines to afford ripe Grapes in May must be closed at once. The outside border should be covered with some dry material and shutters or lights to throw off rain or snow. Fermenting materials may be used in quantity, but they are positively injurious if allowed to become cold and wet when the Vines are in active growth. If some sweetened fermenting materials—Oak or Beech leaves with a third or fourth of stable litter—be introduced to the house, and formed into a bed about 2 feet in height, and turned over occasionally, and fresh material added as the heat declines, it will save fuel, induce a good break from the moisture-laden and ammonia-charged atmosphere generated by the fermenting materials. The house and Vines should be damped two or three times a day. In dull weather the moisture given off by the fermenting materials will be sufficient, and even where they are not employed less moisture will be needed in dull weather than in bright sharp weather. Artificially the temperature should be kept at 55° at night, 5° less on cold nights, which should likewise be the artificial temperature by day, upon which an advance should be made from sun heat to 65°. The inside borders must be rendered thoroughly moist by repeated waterings.

Figs.—The first batch of trees in pots for forcing early should now be attended to, in order to destroy any insects which now exist in embryo and will infest the trees at a more advanced stage. The trees should in the first instance be brushed over with soap and water, and afterwards with an insecticide, care being taken not to rub off the young fruit. Very little pruning will be necessary provided the trees have been regularly pinched-in or stopped during growth, but if thinning or shortening the shoots be necessary to keep the trees symmetrical it should be attended to. A slight warmth at the roots is a great aid for early-forced trees in pots. The trees may be stood on pedestals of open brickwork in the positions they are to occupy, bringing them near to the glass, as free exposure to the light is absolutely essential to success, and the trees should not be overcrowded. Oak or Beech leaves, with a fourth of stable litter, should be thrown into a heap, damped if necessary, and being turned over a few times be placed in the bed and brought up about the pots, but care must be taken not to allow the heat around the pots to exceed 70° to 75°. The soil must be rendered thoroughly moist by repeated watering or immersing in tepid water. The house should be closed, and a start made at the close of the present or early in next month to have fruit ripe by the close of April or early in May, damping the trees and available surfaces in the morning and early afternoon in bright weather, but when dull the moisture given out by the fermenting materials will be ample. At the commencement 50° to 55° by artificial means must not be exceeded, and 65° from sun heat, at and above which ventilate freely.

The trees permanently planted out and intended for early forcing must be untied from the trellis and pruned, thoroughly cleansing the house, and dressing the trees before securing them to the trellis.

The old mulching material should be removed from the border, and fresh material supplied to the extent of 3 inches thickness of partially decayed manure. Later houses should also be cleansed, and everything needed done, so that a start may be made at the proper time. Ventilate freely in favourable weather, closing during the prevalence of frost.

PLANT HOUSES.

Orchids.—Most of the occupants of the East Indian house will now be resting; and though less moisture must be provided, it must not, nevertheless, be entirely withheld; but as the temperature in the morning is rising, as it should by nine o'clock, water must be sprinkled over the paths and between the plants, and any plants requiring water must be given enough to keep the sphagnum damp. All watering and syringing must be completed before noon, so as to insure the house becoming dry before the temperature is lowered, for a cold and wet atmosphere is provocative of disease. During warm foggy weather the houses should be kept comparatively dry, the ventilators being kept close, and no more opening of the doors allowed than is absolutely necessary; but a little air may be given on fine days to prevent the temperature rising too high. Cattleyas and Dendrobiums except such as are on blocks or newly imported, should not receive any water at their roots. Any plants of Dendrobium nobile that have completed their growth early may now be placed in the East India house, and if damped lightly on fine days they may be had in flower by the new year. Very little water should be given at the roots until they begin growing. Let all plants coming into flower or producing their spikes be thoroughly exposed to the light, otherwise they are likely to become blind or the buds to drop before expanding. *Pilumna fragrans grandiflora* is one of the most desirable Orchids, flowering during the winter months. Plants in flower may be removed to a drier atmosphere. *Miltonias* may be repotted, shallow pans being most suitable for their growth, being well drained, as they require liberal supplies of water.

The *Pleiones* that have flowered and require larger pots should have all the old material removed from their roots. They will thrive in almost any light compost, equal parts of turfy loam and peat, also leaf soil, old cow dung, or peat and sphagnum. The pots or pans should be well drained, placing some sphagnum or rough peat over the potsherds. Bring the compost to within half an inch of the rim of the pot, place the pseudo-bulbs an inch apart, covering the old roots with half an inch depth of the compost, watering very lightly until the roots start into growth. To grow *Vanda cœrulea* satisfactorily it should be placed in the Cattleya house. It thrives well in lumps of fibrous peat with the whole of the soft matter shaken out of it, the fibre being loosely worked in amongst the roots in a basket. It likes plenty of light, and should be suspended about a foot from the roof, and needs very little water at this season. *Odontoglossums* requiring larger pots may be shifted, taking care not to disturb the roots more than can be helped. They succeed best in equal parts of fibrous peat and sphagnum, with a free sprinkling of sand, thorough drainage being indispensable, as they require a very liberal supply of water. The period at which any plants commence growing is the best time to repot them. Plants of these that are growing freely require a good supply of water—a good damping overhead on fine mornings with a syringe or fine rose, using tepid rain water for the purpose. *Anæctochilus* will now require careful treatment. Where grown in frames or under bellglasses a little ventilation must be provided, and the glass kept clean, in fact wiped inside every morning. Very little water will be required the next three months, just sufficient being given to keep the sphagnum a little moist. Slugs are great devourers of these plants. They should be sought for every night.

THE BEE-KEEPER.

ODDS AND ENDS.

The Sulphur Pit.—Many years ago I condemned the practice of killing bees by sulphur, spoke and wrote of the great value of bees

in autumn taken from honey hives, and of the easy and simple process of driving them from one hive to another. Since that time many thousands of swarms have been saved and profitably utilised. The other day a letter was received from a bee-keeper in Aberdeenshire which touches this matter of driving. The writer says, "It is now twelve years since you first taught us how to drive bees; my first attempts at this work were comical enough, but now I can handle bees with ease and without fear. And in this locality we can get women, wives, servant maids, and little lassies to drive bees from hives and neatly take their honey; men of all classes can of course do this work." For this little picture of Scottish life in Aberdeenshire we are indebted to Mr. Shearer of Cairnie. Probably no man in Great Britain has saved so many bees from the brimstone pit as Mr. Thomas Addey of Epworth, Lincolnshire. For many years, during the months of August and September, he has travelled over a large tract of country, gathering up the condemned bees, and selling them as an article of commerce. One year he told me he took three hundred swarms. One autumn I had more than 100 lbs. of bees in twenty swarms from Mr. Addey. Every pound of bees includes about five thousand, so that in the 100 lbs. I got five hundred thousand bees in one season to enrich and strengthen my hives. One season a Somersetshire bee-keeper ordered 10 stones (140 lbs.) of Mr. Addey, and I believe he obtained them. This year I have bought 40 lbs. of Mr. Addey and 40 lbs. from another bee-keeper; many other apiarians are supplied with driven bees from Epworth. Mr. Addey informs me that he visited the Lincoln Bee Show this autumn, and there saw something that so disgusted him that he hopes never again to see anything like it. I presume he refers to the manipulating processes seen in the bee tent, which waste and destroy so many lives.

Of the 80 lbs. of bees I bought in October last, 40 lbs. were used in strengthening my stocks, and 40 lbs. were used in creating fifty more stocks. Swarms thus saved and put into empty hives and fed with sugar syrup invariably become my best stocks; they always do well, and can be trusted for early swarms. The six now created are models of perfection. My experience with such stocks rebuts the thoughts and statements of some writers that bees cannot live without pollen. Though our models of perfection have little, if any, pollen in them, I can predict with all the possible certainty that they will be healthy and strong in numbers for five months to come. If such excellent stocks can be created from bees in October, and weak hives made strong, why kill them by sulphur?

Do bees remove eggs from one cell to another?—Yes, certainly. This I have known and witnessed for fifty years. I have often seen eggs laid by queens before being removed from their hives set in other cells after their removal, and have known such eggs become queens, thus proving that they were not the eggs of fertile workers. Queen-excluders, then, so much talked about at present, cannot be of much use? No, they are valueless; for if bees determine to breed in any part of a hive queen-excluders will not prevent them. Last September a correspondent of a journal wrote that one of his hives lost its queen when the combs were filled with honey, brood, and eggs. He removed a frame of honey and gave the hive a frame of empty comb in its place. The hive was examined four or five days after, when there were found several queen cells on the empty sheet of comb. As it contained no eggs when placed in the hive he saw that the bees must have taken them from one comb to another. Eight queen cells were erected and filled on the empty sheet. He adds, "There can be no mistake about this, for I took the empty frame from my honey room where it had been laid six or seven weeks." If more evidence be wanted it may be found in the fact that in many instances—I might venture to say in all instances of breeding in supers—the bees first prepare the cells for the reception of eggs; and experienced men on examining supers can tell where the eggs will be deposited. Bees are the masters and determine these matters themselves without consulting queen or queen-excluders. It will be well for bee-keepers to remember these facts.

Are young queens better than old ones?—Yes, in the sense that a young horse is more valuable than an old one; for though an old horse may be able to do as much work as a young one it decreases in value every year. As queen bees live four years only, they decrease in value year by year. But is it not true that old queens lay fewer eggs than young ones? If so, at what age do they begin to lay fewer eggs? The prevailing idea that the first year of a queen bee is her best may be correct; at any rate I have no disposition to question it, but we know that some queens are very prolific and remain fertile till they reach the allotted span of life, and till within a few days of their end continue to fill their hives with brood. Some queens fail sooner and become less prolific in the third year of their age, and during the breeding season their abdomens seem less expanded than younger queens. As queens advance in age their abdomens become darker in colour; and in

their fourth (last) year very dark, and somewhat contracted and tapering. Their wings and legs often decay before death.

Though very few queens fail to lay eggs enough for ordinary-sized hives, even in their third and fourth years, it is desirable to have young queens in all hives. Some seasons in Great Britain are unfavourable for swarming, and in such seasons few swarms are obtained. The queens in non-swarming stocks are of course a year older and of less value. If a bee-keeper has twelve stocks and takes no notice of the age of his queens and leaves all to chance and fate he will, perhaps unknown to himself, sustain great losses in the death of all his queens every four years, at the rate of three deaths every year. Are some young queens better and more prolific than others of the same age? In the nature of things there must be good, better, best, and doubtless there is a difference in the fecundity of queens as there is in the case of hens and other birds; but after a lifetime of experience and close observation I have no hesitation in stating that fertilised queens seldom fail to lay eggs enough for all purposes—that ninety-nine young queens out of every hundred lay more eggs than the bees require or have room for.

Some American and English writers on bees go, in my opinion, too far in their remarks on unproductive and bad-breeding queens. Through life our queens have been wonderfully productive, and now I have no fear of ever having bad queens or a bad breed of queens in future. But is it not a fact that some hives thrive better and become full sooner than others standing beside them? Yes, and very few bee-keepers of note have failed to notice the fact that one hive, at first not the most promising in the apiary, overtakes and outruns all the rest. This is a very common occurrence, but who can explain the cause or give satisfactory reasons for the difference? Some writers hastily come to the conclusion that the prosperous fast-going hive has a better queen than the rest—that one queen is prolific and the others are not so prolific. Such conclusions are often mere guesses and remain unsupported by fact and argument. Take a hive of slow progress—one that loiters on the way and gathers less honey than others standing beside it. At last it swarms, and the swarm and old queen get an empty hive to fill. Now everything seems to alter; the bees work as fast as they can, and soon fill the hive with combs and the combs with brood. In about three weeks the swarm-hive becomes as full of brood and honey as the mother hive was at the time of swarming. The same queen and bees now do more work than they did in the old hive—three times as much work is done in the new hive. All this happens in hundreds of instances, and some people too hastily blame the queens and say they are unproductive. If the queens are at fault in the old hives before swarming, why are they not at fault in the new hives after? And why do swarms in good seasons so often overtake and outrun non-swarmers both in breeding bees and gathering honey? The cause of hives not prospering is far more likely to be found in their internal condition rather than in their queens being poor egg-producers. It is not just to cast the blame of bad luck and bad management on queens whose marvellous productiveness so seldom fails. However, the question of slow-moving and non-productive hives, viewed from a practical point, is one of great importance and cannot be too deeply pondered; it is a question for all bee-keepers, and its solution will enlighten and help all apiarians. Meanwhile let all aim at having hives with young sweet combs, young queens, and strong with workers. These are essential conditions of success. The owner of an apiary of such stocks has nothing to fear; on good pasture and under sunny skies the results of his efforts will be highly satisfactory.—A. PETTIGREW.

THE ART OF BEE-KEEPING.—No. 3.

(Continued from page 464.)

NATURAL HISTORY.

Much assistance can likewise be given to the *building* instincts of the bee, for it must be remembered that the material from which those marvellous combs are built are not gathered by the bees, as many suppose, but are elaborated from their own bodies at much expense of time, and money, and tissue. To produce the eight little scales of wax which may be seen protruding from the wax pockets under the abdomen, and which together would form a pellet less than a grain of mustard seed, the bee must gorge itself with honey and hang in a semi-dormant state for about twenty-four hours. With half or two-thirds of the bees of a large swarm thus gorged and inactive at one time, anyone can see that wax is really an expensive substance both to the bees and the bee-keeper. Happily, recent inventions have now made comb foundations of pure wax so easily and cheaply obtained that no modern bee-keeper thinks of allowing his bees to produce all the wax required for their combs, or to build these of a kind and shape detrimental to the colony and inconvenient for management. With bar frames

and sectional supers comb foundations are a great boon, and the more liberally they are used in an apiary the more profitable will they be.

One other instinct, equally strong in queen, workers, and drones, must not be lost sight of, that of *locality*. On first taking flight from its hive every bee "marks its location" by making the circuit of its hive in ever-increasing circles, until its position with regard to surrounding objects is thoroughly apprehended. After that it sallies forth apparently heedless as to its location, but never fails to find its way back from whatever distance it may have flown to. As bees have been known to fly in search of honey to a distance of over five miles from their hive the acuteness of this instinct is remarkable. Should the hive be removed during its absence the bee will return to the old spot and probably perish; a remove of a foot or two will even cause it great confusion. The bee-keeper should thus be careful in regard to all needful alterations about his apiary. All removals should take place during the winter months, and even then only with great precaution, unless the distance to be covered be several miles. Small distances may be covered in summer by easy stages of a foot or two daily. Bees likewise mark their location anew after settling or being hived as a swarm, and this gives us an easy way of effecting removals at any season with small loss. We simply reduce the bees to the condition of a swarm by first driving or shaking them into an empty box or skep, and preferably in the evening, and afterwards run them into the hive in its new location. But the loss of a few bees through heedless removals is as nothing to the loss of queens that often takes place through hives being removed or altered in appearance during the period of a young queen's virginity. At this time she flies on every fine day, but she only once thoroughly marks her location. We have known such to be lost as a result of the substitution of a bar-frame hive for the skep from which she had previously flown. Instead of returning to the new hive she entered the nearest skep and was killed. Various plans are adopted to lessen the risk of such losses, such as disguising by means of a sack or branch the old hive for a few days before making the change, and similarly disguising the new one. The similarity and closeness of hives in an apiary is for the same reason a frequent source of loss both of queens and bees; consequently attempts should be made by means of shrubs or palings to break up the monotony of all large apiaries, and hives that are to be near each other should differ in design and colour as much as possible.

Many other facts in the natural history of his bees must be taken into account by the bee-keeper, such as their liability to get chilled and perish when tempted out of their hives by untimely feeding or handling; their habit of gorging themselves directly they are alarmed or disturbed, rendering them amiable in temper, but in winter tending to induce distension and dysentery; their excessive fondness for sweets and the apparent rapidity by which whole colonies are made aware of their presence in accessible places, making it dangerous at certain seasons to leave honey or other sweets anywhere within their reach; their baffled rage when such tempting supplies suddenly fail, leading them not unfrequently to attack men and animals viciously, or to force their entrance into weak hives for purposes of robbery; the habit they frequently develop of looking out and preparing a place where they may settle as a swarm, generally a roof, hollow tree, or untenanted hive in a neighbour's garden; and the mysterious power of communication by which the few scouts make the swarm aware of the existence of such a retreat, to the amazement and discomfiture of the bee-keeper, who ought to have known how to prevent the loss that comes so suddenly upon him. He ought to know that bees recognise each other chiefly by the sense of smell, and take precautions accordingly when uniting stocks or introducing strange queens; that gorged bees are not only harmless towards the operator but towards their own kind, and in this condition may be safely united, one stock or swarm with another; and that at least first swarms are generally in this gorged state. He should at all times be prepared to discover that in the best regulated communities accidents will happen; that queens may die or become hopelessly crippled at any period of their age, and leave the stock to perish unless he comes to its help with a new queen or the means of rearing one; that under the influence of the excitement of a first fine day in spring both bees and queen may desert their hive bodily; that combs may break from their fastenings owing to intense heat or want of ventilation; or that foul brood—that greatest of bee-keepers' scourges—may at any time be imported from the apiaries of careless neighbours. Above all he should make himself thoroughly acquainted with what ought to be the normal state of a healthy colony at every season of the year, that he may regulate his management accordingly, and likewise what are the conditions as to natural supplies in his own neighbourhood at any season, what are the main sources of honey and pollen when these become available, and what assist-

ance he may be able to give by sowing seeds of honey-producing flowers, or by feeding to bridge over any gaps in the natural supply.
—W. RAITT, *Blairgowrie*.

(To be continued.)

TRADE CATALOGUES RECEIVED.

N. Davis, 66, Warner Road, Camberwell, London, S.E.—*Catalogue of New and Old Chrysanthemums*.

S. Dixon & Co., Anton Street, Hackney.—*Catalogue of Chrysanthemums and Roses*.

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Forest and Ornamental Trees*.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Coloured Plates of Orchids (W. T.).—Perhaps Mr. B. S. Williams, Upper Holloway, can give you the information required.

Celery for Exhibition (E. C.).—If you require large heads, which are usually coveted by exhibitors, Wright's Grove Red and Grove White will afford them under good cultivation. We have seen many heads of these varieties 9 lbs. in weight. The seed can be had from any nurseryman or seed firm of repute either in London or the provinces.

Roman Hyacinths and Narcissuses (Silopian).—If you can grow the plants after flowering in a light house, so as to produce stout healthy foliage, and keep it green as long as possible, then mature the plants under the influence of sun and air, they will flower pretty well another year if planted in a border, but usually the room and time thus occupied are not profitably employed, since fresh and good bulbs can be produced so cheaply. When not forced so early they are much more easily prepared for flowering another year in the open ground.

Kangaroo Vine (Kittie).—The plant to which you refer under the above name is *Cissus antarctica*, a member of the same natural order as the Grape Vine. It is a native of New South Wales, and was introduced to this country at the close of the last century. It is frequently seen in some of the London parks, especially at Battersea, where it is planted to climb over old stumps and tree stems in the subtropical garden.

Pear Trees Cankered (F. G.).—The wood that you have sent indicates either that the soil needs draining or that it contains something that is injurious to the roots. Probably an excess of moisture and a deficiency of calcareous matter have caused succulent growths which have not matured, and hence their decay. Drain the land, and replant the trees slightly above the general level of the ground rather than below it, placing fresh loam round the roots, with an admixture of lime rubbish and wood ashes. Cut off the affected parts, keep the growths thin, and in all probability the trees will recover.

Adhatoda cydoniaefolia (H. W.).—You will find an excellent engraving of this plant on page 543, December 15th, 1881, when the following cultural and descriptive particulars were given:—This plant is easily cultivated, and is worth a place in any collection of plants, and what adds to its value is that it blooms at a season when flowers are scarce. Perhaps its only objection is that it has rather a straggling habit of growth, but the way to overcome this objection is to train it under the roof or up a pillar; in such positions it appears quite at home. The best time to propagate it is in spring when it has commenced growing. The cuttings strike very readily in a little bottom heat, and should be potted as soon as rooted in a light rich soil. As soon as the pots are filled with roots the plants must again be potted, and when established the tops may be pinched to induce them to branch. After this they may either be grown on in larger pots, or planted out in a border in the stove and trained up a pillar or under the roof. *A. cydoniaefolia* is a native of Brazil, and therefore requires a stove temperature or an intermediate house.

Grapes for Autumn (J. R., *Bury St. Edmunds*).—There is no Grape that possesses "all the advantages and good qualities of the Black Hamburgh." A free-bearing and good-setting Grape, as likely to answer your purpose as any other, would be the Black Alicante. Although not of high quality the bunches are unusually good and the berries fine, assuming a purplish-black colour and fine bloom, giving them an imposing appearance. By planting in the warmest house, and starting as soon as you can consistently with being able to maintain a night temperature of 60° to 65° during the flowering period, the Grapes will follow the Black Hamburgh, and continue firm throughout the winter. You might try a Vine of Madresfield Court. It is a splendid autumn Grape, and if the berries do not crack you will probably increase it. It follows the Black Hamburgh, but does not keep nearly so well as the Alicante.

Potting Pelargoniums (Donegal).—Your Madame Thibaut that is now fading had better not be cut down and repotted now. Place the plants in a light position, and only give water sufficient to prevent the leaves drooping to any

great extent. As they are turning yellow they will probably decay gradually and fall in the course of a month or two. At that time, say in February, the stems will be hard, and the plants may then be cut down, still keeping them rather dry. In March they will have commenced fresh growth, and when the young shoots are an inch long turn the plants out of the pots, shaking nearly all the soil from their roots, and repot in pots of the same size or smaller, draining them well, and using a compost of turfy loam with a third of very old decayed manure or leaf soil, with sand to keep the whole porous, and afford the plants a light position in a house having a genial temperature. They will then, if watered judiciously, produce strong and healthy growths, and in time fine trusses of flowers. If cut down now the growths will be weak, because produced in the dull months.

Propagating Clematises (Idem).—Clematises are not readily increased by cuttings, or, at least, it is seldom that amateurs succeed in striking them. Short stubby shoots about 5 inches long, rather firm, but not hard, taken off close to the stem from which they spring and inserted in sand, covered with a bellglass, and the pot plunged in gentle heat, is the manner in which we have succeeded. Plants of the choicer varieties are increased by grafting them on roots of the freer-growing kinds established in pots and placed in a propagating pit. You will find full particulars on the propagation and culture of these plants on page 349, vol. ii., third series, the issue of May 5th, 1881. If you do not possess this number it can be had from the publishers in return for 3d. in postage stamps.

Various (Idem).—Roses in the open air cannot be expected to continue flowering much longer. The unopened buds will be destroyed if not protected, and they cannot be preserved if the frost is prolonged and severe. Against slight frosts you may protect them by such means as you have at disposal or can devise. There is no Rose proof against the attacks of aphides. Dwarf crimson China Roses, such as Fabvier and Cramoisie Superieure, are pretty in pots in small greenhouses. A good very dark Hybrid Perpetual Rose is Louis Van Houtte, Senateur Vaisse having more scarlet and very bright. Petunias in pots will flower a second year. The plants must not be cut down closely now, but long shoots may be shortened. It is well to raise young plants in the spring from cuttings, which strike readily in a heated frame.

Apples and Plums for Market (J. E.).—You will find Damsons profitable fruit, and we should plant those in the hedgerow, leaving the meadow for the standard Apples. The Farleigh or Crittenden and the Prune are the best Damsons for market. The new large Bullace is useful, coming in after the chief crop. Early Apples as standards will pay you best. Good showy Apples must be provided to suit the market, such as Worcester Pearmain, Ecklinville Seedling, Lord Suffield, Cox's Pomona, Cellini, King of the Pippin, Small's Admirable, Stirling Castle, and Duchess of Oldenburgh. If any of them succeed in your locality better than others you should plant those in quantity. You will, however, succeed much better on the cultivated ground. Plums and Apples succeed well together as dwarfs, the Apples on the Paradise stock. Plant in alternate rows 8 feet apart, with Gooseberries between, which pay well if gathered green. The following Apples do well as dwarfs, supplementing those enumerated above: Irish Peach, Cox's Orange Pippin, Warner's King, Ribston Pippin, Dumelow's Seedling, Betty Geeson, and Mannington Pearmain. The last four are late varieties, but well worth growing. The following Plums do well as dwarfs: Rivers' Early Prolific, Belle de Septembre, Prince Englebert, Prince of Wales, The Czar, Sultan, and Victoria, all of them being good for market. Early Prolific comes in before the market is glutted, and Belle de Septembre after.

Seakale Boxes (Melton).—We are not aware that any firm makes what you require, and we would rather purchase pots than wooden covers for placing over the crows, as heat does not pass through wood so well as through earthenware. Still, boxes have been used successfully by Mr. Gilbert of Burghley, and

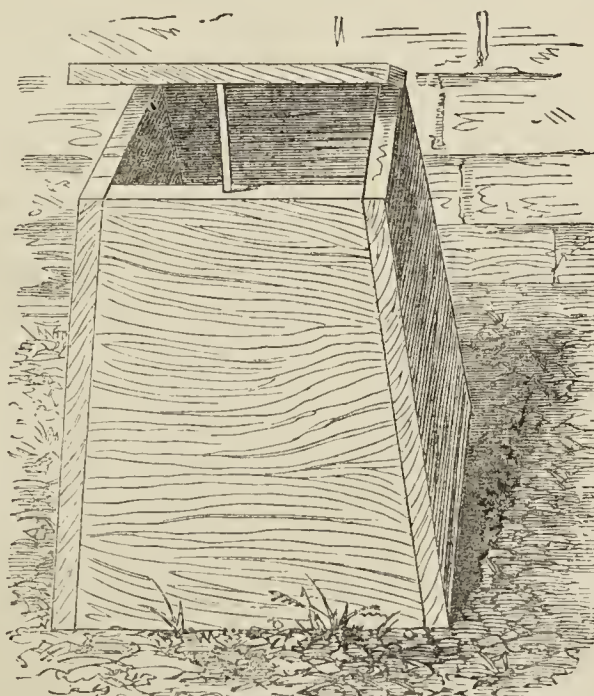


Fig. 86.

the annexed figure of one of his will enable you to make any number of a similar kind. They are simply four boards nailed together without dovetailing. They are a foot wide at the top, increasing to 18 inches at the bottom for covering the root. In height they vary from 18 to 30 inches, according as they are required for Seakale or strong-growing Rhubarb.

Pruning Trees (A Twenty-years Subscriber).—The length to which the shoots of newly-planted trees should be shortened depends very much on the roots. If they are well rooted you may remove about one-third or a little more; but if the roots are not numerous, or have been much cut in digging up, then shorten the shoots to half their length. Just as the sap is moving in the spring

is a good time for pruning the trees. Pyramids shorten similarly—that is, the leading branches; the side growths from those branches prune to one or two buds. If in the course of two or three years the trees grow too strongly you can check their luxuriance by root-pruning.

Pine Leaves Decaying (*F. C.*).—We shall be glad if you can quote the page on which we recommended liquid manure of the nature you describe diluted with half water, as unless it was advised under exceptional circumstances and special conditions there must have been a misprint, which needs rectification or explanation. If your Pine plants are not very large and the pots small, also crowded with roots, the stimulant would be too strong, and by checking root-action would lead to results similar to those indicated. Although water may not have lodged in the crowns we suspect it has accumulated at some time or other in the axils of the leaves, and thus aggravated the evil of which you complain. If you had informed us of the age and size of the Pines, the size of the pots, and whether filled with roots or not, together with the bottom and top heat to which the plants are subjected, in all probability we should have better comprehended the state of the plants and the best treatment to adopt under the circumstances. If you do not possess Mr. David Thomson's work on the Pine Apple, published by Blackwood & Sons, you will do well to procure it. It is a small volume, in which is recorded the experience of one of the most successful cultivators in Great Britain, and could not fail to be of service to you.

Cutting Down Vines (*Idem*).—If we remember rightly the Vines are very small, and we advised you to cut them down, with the object of producing strong fruiting canes another year. You had better place them in a cooler house. A Pine stove is certainly not the proper place for them at this season of the year, as their growth will be excited while rest is needed. When the leaves have fallen from at least two-thirds of the length of the cane, and the others are quite yellow and ready to drop off, cut down the Vines to a bold eye as near the soil as possible. The incipient growths to which you refer must be trimmed off, and the canes severed at a prominent bud that has not produced growth. Winter them in a perfectly cool place, and in the spring, when they commence growing, they will probably be better for being shaken out of the pots and the roots placed in fresh soil, as we apprehend the present pots, being large, are not filled with roots to the extent that is desirable, otherwise the canes would be as thick as your finger, short-jointed, hard, and studded with bold eyes, in which case cutting down would not be required. In all probability the variety to which you refer is the Black Muscat of Alexandria, a richly flavoured Grape, but not easy to produce in satisfactory condition.

Grape Vagaries (*M. D., Inverness*).—The first matter that perplexes you is that the Grapes in No. 1 division of your range, which is heated with eight rows of 4-inch pipes, are little, if any, earlier than those of the same kind (Black Hamburgs) in divisions Nos. 2 and 3 that are heated with four rows of pipes, all the Vines being started at the same time—namely, about March 1st. Our reply on this point is that the heat afforded by the eight rows of pipes is needlessly, and even injuriously high, and that the necessarily lower temperature in the other divisions is ample for ripening Black Hamburgs. When more heat than is requisite is maintained the growth of the Vines is unduly excited, which leads to debility sooner or later—that is to say, the Vines will fail to properly finish their crops sooner than others will that are grown under somewhat cooler treatment. That this is so your own Vines testify, as you say those in No. 1 division are "always ill coloured, better in No. 2, and pretty decent in No. 3." This indicates that the fire heat in No. 1 is excessive, drying the atmosphere unduly, and just as the artificial heat decreases in the range the Grapes improve. The Vines in the hottest division will start into growth the quickest, and will make a greater extension of growth before root-action commences than in the case of the others, to the certain disadvantage of the former as affecting the colouring process. Or, to put the matter in other words, the Vines in the cooler divisions will finish heavier crops than the others that are overheated can do, simply because the growth in the cooler structures is more steady at the first, and there is not the same delay in free root-action. The colouring of Grapes is not a question of ventilation so much as of support. If ventilation were the chief factor in colouring Grapes, then the crops in your three divisions would be finished alike, inasmuch as ventilation is similar throughout. The difference in the condition of the produce is entirely a question of support. The crop in the first house is too heavy, of that we have no doubt. But you may say it is not heavier than the weight of fruit in the others. It may not be, but the Vines are weaker, and 10 lbs. of Grapes on a debilitated Vine are far more exhaustive than twice that weight would be in the case of a strong and vigorous Vine. You must either reduce the weight of Grapes where the berries do not colour, or increase the root-action and the supply of food, for the want of colour is evidence of the want of support. We will now refer to your next perplexity, which you state as follows:—"A conservatory joins vinery No. 1, and a shoot of the Black Hamburg was taken through and trained, for affording shade, under the conservatory roof, this structure being kept as cool as possible all the summer with air on night and day. The same Vine that gives light brown Grapes in No. 1—the house with eight rows of pipes—in August, gives jet black Grapes in the conservatory in October, very sweet, and their skins are leather compared with their fellows in No. 1," and you conclude by saying "there are some things no fella can understand." This, however, is not one of them. If you consider for a moment you will perceive that nearly two months elapsed between the brown Grapes and the black Grapes ripening. All this time the Vine was increasing its roots, and we do not hesitate saying that they had at the least twice the food-absorbing power early in October that they had early in August. This is the simple solution of the problem of the brown and black Grapes on the same Vine. Very naturally you ask how you can have black Grapes in the vinery instead of brown, and suggest that you will owe us a bunch or two if we can inform you how to produce them next year. At once procure some fresh turfy loam inclining to be heavy instead of light. To each cartload add half a bushel each of bone meal and half-inch bones, also, if procurable, two or three bushels of wood ashes, mixing all well together, then remove much of the inert and ungenial soil from the roots, and place them in the fresh compost. If you notch some of them and shorten others you will find fresh roots form more readily, and take possession of the new soil. Keep the Vines cool, and let them start naturally in the spring; let the crops be lighter than before, ripen the fruit in September instead of August, and we think you will be able to send us a bunch of really black Hamburgs. If we have not made the matter clear to you, please write again.

Names of Plants (*H. W.*).—The plant is *Adhatoda cydoniaefolia*. See reply above. Seeds of the *Hierochloa borealis*, also known as *Holcus borealis*, could doubtless be procured from any of the principal seedsmen.

A Weak Hive (*Olyssens*).—As the hive which you have just bought contains only a small handful of bees and about 15 lbs. of honey it will probably

die during the winter. The bees in such cases generally perish in a cluster from cold. If the hive has three small seams of bees it may be preserved by closing the door and taking the hive into a house or room and keeping it there till spring, say end of February. You are probably right in thinking that mice have had access to the bees. They are great pests, and destroy many hives by killing the bees in autumn and winter. The doors of all hives should be contracted to keep them out. Feeding would not now cause the bees to breed.

Balance Sheets of Bee-keeping (*W. T. Garnett*).—We do not remember the numbers in which these appeared; but in the "Handy Book of Bees" (second edition) Mr. Pettigrew states that from 1870 to 1874 his profits were £220, after deducting the expense of 10s. per hive annually.

Making Mead (*A. Keeling*).—There are several methods of making mead, the following being recommended by an authority on the subject as simple and good:—To a gallon of water put 2 lbs. of honey and 1 lb. of sugar; boil for an hour, put in the whites of four eggs to clarify, and skim it quite clear whilst boiling; then put it into a clean tub, and let it stand for a week, putting in a toast with honey to make it work; then tun it, put in the peels of three or four lemons, let it stand for a month, and then, if it is not sufficiently fine, put in more honey, and let it stand longer.

COVENT GARDEN MARKET.—NOVEMBER 29TH.

THE character of the trade remains the same as recorded last week.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 0 to 7 0	Lemons.....	case	20 0 to 30 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	2 0 3 0
Cherries.....	½ sieve	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	10 0 12 0	Oranges.....	100	6 0 10 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 2 0
Figs.....	dozen	0 6 1 0	" dessert.....	dozen	1 0 2 0
Filberts.....	lb.	0 6 0 0	Pine Apples, English	lb.	2 0 3 0
Gobs.....	100 lb.	45 0 50 0	Raspberries.....	lb.	0 0 0 0
Gooseberries....	½ sieve	0 0 0 0	Strawberries....	lb.	0 0 0 0
Grapes.....	lb.	1 0 5 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Lettuces.....	score	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mushrooms.....	punnet	1 0 1 6
Beans, Kidney....	100	1 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beet, Red.....	dozen	1 0 2 0	Onions.....	beh.	0 6 0 0
Broccoli.....	bundle	0 2 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	1 6 2 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 0 0 0
Capicums.....	100	1 6 2 0	Potatoes.....	cwt.	6 0 7 0
Carrots.....	bunch	0 4 0 0	" Kidney.....	cwt.	6 0 8 0
Cauliflowers.....	dozen	2 0 3 0	Radishes.....	doz. bunches	1 0 0 6
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 8	Scorzonera.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	2 6 3 0
Fennel.....	bunch	0 3 0 0	Shallots.....	lb.	0 3 0 4
Garlic.....	lb.	0 6 0 0	Spinach.....	bushel	3 0 0 8
Herbs.....	bunch	0 2 0 0	Tomatoes.....	lb.	0 4 0 0
Leeks.....	bunch	0 3 0 4	Turnips.....	bunch	0 2 0 4



POULTRY AND PIGEON CHRONICLE.

NEGLECTED PASTURES AND WASTE LANDS.

(Continued from page 490.)

FROM quotations and observations we have endeavoured to make it apparent that the earthworm is a very valuable assistant to the farmer in every attempt which he may make to form or improve by renovating or manuring either old or new permanent pastures. There are, however, some operations of worms to which we may not have alluded, but which are fully treated of in the work written by the late Mr. Darwin. In it is an important allusion which had escaped our notice, and which has not generally received that attention which it deserves—namely, whether or not some of our most pungent and, we may almost say, caustic manures which we employ may prove to be destructive or distasteful to this valuable but humble assistant. We recollect that couch with earthy matters adhering to it proved to favour their operations more than fresh and active manures, like strong box or stall-made manure and town or farmyard dung.

Some reference is now needed to neglected pastures which first came under our notice about ten or twelve years ago, as illustrating valuable points. We had known this farm for more than forty years as consisting of a strong clay loam resting upon strong

yellow, or what we term beeswax, clay. It has during the past thirty years been fairly well tile or pipe-drained, and has borne fair crops of Wheat, Oats, and Clover when the seasons were favourable. It was always very heavy tillage, but during the past twenty-five years it has nearly all been chalked with a heavy dressing of upwards of 30 tons per acre, and greatly improved thereby. This statement is made with the view of showing that the basis favourable both for tillage and pasture had been laid by draining and chalking. For many years this was farmed on the old four-course system of Wheat, Oats, Clover and grass, and a winter and summer fallow. As the farm was unsuited for sheep-feeding, a dairy of cows had been kept, and in its management about ten or twelve years ago some of the fields only needed for hay crops with mixed Clovers and Rye Grass were left to become pasture and fed entirely by cows. Very little grass food was obtained, and, never receiving any manure, the Clovers died out and were succeeded by the *Carex* or Carnation Blue Grass, with some other worthless sorts, amongst which was the Black Bent, and Fiorin or Water Grass. But what made the land lie colder was that it was left in ridges $8\frac{1}{2}$ feet wide, the same as it was laid when in tillage. This circumstance alone did injury, and seriously impeded the prospect of obtaining a permanent turf, especially as it was fed off by dairy cows living only upon what they could obtain in these fields and some poor meadows, without ever obtaining any cake or corn, and in the winter time getting but little else besides straw or inferior meadow hay.

About seven years ago, however, a change of tenantry occurred on the farm, and the present tenant, a most enterprising and practical farmer, inaugurated an important change in the management of these neglected pastures. An improved method of feeding the dairy cows was also adopted, which were not only largely increased in numbers, but were of the improved Guernsey breed, and maintained especially for butter-making purposes, and assisted during summer and winter by 4 lbs. of cotton cake daily, in addition to a full bite of the best grass in summer, with a liberal allowance of Mangolds and good hay in the winter. They were expected to be beneficial, and proved profitable in two ways—first by yielding a large quantity of the best butter, and secondly by leaving valuable dung both on the pastures and in their stalls. When inspecting this farm with the present tenant about five years ago we advised him, in addition to his liberal mode of feeding the cows, to adopt a plan which had succeeded with us on various estates as to the manuring, and the plan has been carefully carried out by applying yearly about 4 cwt. of bone superphosphate per acre, and by each alternate year applying a liberal dressing of not less than 18 or 20 tons per acre as a compost of earth and farmyard dung, with some ashy town dung mixed together in the following manner. The earth obtained from various sources, such as roadside earth, couch, bank and border earth, and the proceeds of trenching in the meadows and ditches, and carted at all leisure times to large heaps made just within the fields or at the side of the roads contiguous to the pastures where it was intended to be applied, and each heap when made had a quantity of dung laid upon it of about one-third of its bulk, which was immediately turned up together and carefully mixed, and allowed to remain to amalgamate and decay, in readiness for laying out on the pastures, which was done in the early autumn on part of them in each year as the compost became ready and sufficiently decayed and commingled. We viewed this farm in the spring of 1879, before the plan of manuring had been continued long enough to show its effect; but on going over the farm again in the last week of the month of May this year 1882 we were greatly astonished to find a most extraordinary improvement on all the pastures which had been treated as before described, those which had been manured longest showing the best results; for upon two fields which had been the longest under treatment, although no seeds of any kind for renovating purposes had been

sown since the Clovers, &c., had died away, yet there were some of the heaviest crops of the best herbage we had ever seen, composed of Yellow Suckling, permanent Red Clover, and various kinds of useful pasture grasses. The weight of the crop for hay we estimated at 2 tons per acre of the finest quality, for the grasses were so thick on the land that they could not grow coarse. This was the result entirely of the feeding of cattle with cake and the dressings of composts especially adapted for the purpose in every way. Not only were the dressings of rich manuring value adapted for strong soils, but were also effective in setting the earthworms to work, a matter of the highest importance upon this otherwise impervious clay soil. At the same time, the earthy compost we consider eminently useful in encouraging the appearance and growth of the best grasses indigenous to the soil, and this we regard as most encouraging to the home farmer.

In the stocking and cropping of these pastures no sheep had ever been allowed to graze upon them, and dairy cows only had fed thereon after the hay was cleared. It must also be borne in mind that for the three years previous to our last visit hay crops had been carried off in each year, yet the improvement was as we have stated, which is a striking illustration of the wisdom of saving the grass for hay, and feed the aftermath only. But after the new grasses are thoroughly established we do not object to graze with cattle and take a crop of hay in alternate seasons.

In concluding our remarks we must urge the great importance to the home farmer of selecting each kind of seed separately, and endeavour to make himself acquainted with the shape and characters of them, so that in his own interest he may be able to examine and understand, after having ordered the kinds of seed which he requires, whether he has obtained them, and that he may then have the satisfaction of making his mixtures of seeds in his own way. We read in the *Journal of the Royal Agricultural Society of England* just issued that mixtures of grasses for permanent pastures have been brought before the notice of the Seed Committee of the Royal Agricultural Society, and examined by their consulting botanist, Mr. W. Carruthers, F.R.S., which had been purchased as containing the kinds and proportions of seeds recommended by a practical authority in the Society's *Journal*, and have been found to contain a large proportion of Rye Grass, Yorkshire Fog, and other worthless grasses. Nothing can show more forcibly than these facts the actual necessity of the home farmer having all his seeds required delivered separately, in order that he may not only scrutinise them as to their genuineness, but also have the opportunity of mixing them in such proportion of sorts as his soil and climate may render necessary in his own judgment and experience, or in accord with the experience of the most practical men.

WORK ON THE HOME FARM.

Horse Labour.—In nearly every district in the kingdom the seed-time for Wheat has been greatly delayed; even upon the hill farms and lightest soils the work of much Wheat-sowing has still to be done, and what has been done for the most part was succeeded by heavy rains in the night or day after seeding, which we know is much against the prospect of getting a regular plant of Wheat. When, however, we consider the condition of the heavy flat-lying soils in any district, seeding the land with Wheat in a satisfactory manner has been impossible unless done in September, and unless we get an immediate change of fair weather without frost but little Wheat will grow on such soils this year. It may be stated that we never had any reason to regret it when in the months of February or March we have sown what is called April Wheat. It has a bearded ear and yields a coarse strong sample of Wheat in the grain. We have obtained enormous crops of straw which is generally very stiff and strong, being well adapted for thatching farm shedding, ricks of hay and corn, and for sale in the towns for littering horses and cattle in stalls it is much valued; the yield of grain, however, is sometimes disappointing as to quantity, for the heaviest crops of straw seldom reach 40 bushels per acre. The horses have been fully employed where the land is high and dry by carting and heaping for store the crops of Mangold and Carrots, also in ploughing the stubbles to remain during winter. Upon the strong-land farms, however, the work for the horses for some time has been almost nil as

connected with land and its seeding, the ploughing and pressing. Drilling simultaneously has also been done at intervals upon lea ground with the press drill, which is made to deposit the seed in the grooves made by the rings of the presser, and when the harrows follow immediately after the work is securely done, and in case of change of weather, may be left at any period of the day. It is sometimes found to answer a good purpose in sowing by hand on the surface where the sheep have fed off roots, and plough it in shallow, and one advantage of this mode of seeding is that the corn does not become rootfallen and break down when in ear. The odd horse or mule will find full employment now to cart hay, straw, and roots for all the cattle and horses, they being now nearly all under cover except a few store stock. Earthing the cattle pens, pigsties, and similar work can now be done at odd times.

Hand Labour.—Pulling Mangolds is still being continued, also making up and covering in the store heaps. The meadows must be trenched, and water meadows will now be in flood and must have attention. Work in woodlands, too, will be going on, such as planting Firs for Hop poles, cutting underwood, Elm, and Ash timber; also hedging and ditching in the open districts. However, where dead fences are made of underwood and rods from the hedgerows creosote has been used with good effect by steeping the rods in liquid creosote, and the fence, it is said, will last double the time when so treated.

Live Stock.—We are approaching so near to the Christmas markets that the bullocks which are forward enough should be sold, in order to participate in the high prices which are likely to prevail. The same may be said of sheep which are fat enough, either of ewes, wethers, or tegs; they should all be sold, for they will very probably be dearer than we have ever known them. In the statement we made of the detail of feeding the early lambs last week we could not find space to finish our comments upon the subject as we wished to have done, and will now resume it by stating that first-class hay is of much more importance to this kind of stock than for wethers and older animals. We, therefore, in our practice always grew hay for the purpose, being composed of the finest and softest grasses, such as White Dutch and Yellow Trefoil Clover, without Rye Grass; for although the Trefoil comes into bloom earlier than the Dutch, that we do not regard, for when we have a full crop the Dutch makes the best hay when cut in grass just before it comes into bloom. We have obtained in a season or two the best hay made by Dutch alone, but it is too great a risk, as it takes much time in making, and we therefore mix Trefoil with it, enabling us to make the hay in three or four days' less time, and we always like to make it during the May month, without so much regard as to quantity per acre, our object entirely being to secure the best possible quality. When we have been deficient in the quality of our lamb hay the quality of the lambs has generally been disappointing. We have always been very particular where the ewes were fed on Mangolds at the troughs. It was our usual practice to so manage as to prevent the lambs from eating with them, as our best lambs were always made whilst eating white Carrots or James's Intermediate Red Carrot, because whenever the lambs are allowed to eat Mangold, especially after they are nearly fit for the butcher, the wether lambs are sure to suffer from stoppage of urine. We therefore always feed the lambs first in the morning; they will then draw away from the ewes into their own feeding fold in advance, and be shut in whilst the ewes are being fed.

POULTRY AND PIGEONS

POULTRY NOTES AT BIRMINGHAM SHOW.

THE annual gathering at Bingley Hall is looked forward to by many fanciers as the event of the year. The old birds are better through their moult than at the Palace, and some old faces which are to be seen nowhere else turn up at Birmingham with a regularity which says much for their faith in this old-established institution. This faith is in nowise misplaced. Although the authorities at Bingley Hall are inclined to be conservative, one good result of this spirit is that improvements, though they may have been tardily introduced, are steadfastly maintained. All the good results of a long experience were thus reaped in the Exhibition which opened on Saturday last. The penning arrangements were admirable. The awards were speedily made known. The wants of the birds were carefully attended to. Saturday was a clear bright day, and the additional windows in the roof constructed previous to the last Show made the light thoroughly satisfactory for judging, except just in the first row of Class 1. As last year, the awards are printed throughout in the catalogue by the side of the entries, which is a great help to those who want to refer to them quickly. Formerly it was necessary to turn continually from the entries to a list of awards like an appendix at the end of the catalogue.

Brahmas continue to head the list, from which position they some years ago displaced *Dorkings*; they filled 429 pens. The prize birds in these varieties were almost in every case priced at prohibitory sums, but we heard of various private sales at which birds changed hands at high figures. The 10 per cent. commission charged on sales

effected through the office causes many such private transactions to take place. Mr. Gibbins' cup Dark pullet, priced at ten guineas, fell to the hammer for sixteen guineas. The selling class birds in very few cases fetched more than their catalogue prices, an exception being the Rev. T. C. Peake's pair of Dark pullets priced at two guineas, which fetched five guineas. In the Dark variety there was a curious reversal of the Palace awards. This may be partly accounted for by the fact that the position of some of the birds as to height of pens and light was different, but we cannot allow this as a sufficient explanation. The old cocks (36) were on the lower tier, and looked much better. Lady Gwydyr's bird, which looked yellow in the strong light at the Palace, and was there unnoticed, here had the benefit of a position in the first row, which, as we have already noted, was rather dark. His size and shape here carried him to the front, and he took the cup for cocks and cockerels. He was somewhat closely pressed by second (Comyns), a medium-sized bird with a very graceful outline and broad cushion. Third (Norris) occupied the same position at the Palace, and is a fine bird, but now shows a little white in tail: h.c. (McMorland), the Palace cup-winner, here shows a lack of cushion; 1 (Sir H. Thompson), unnoticed on account, we believe, of a blind eye; and c (Norris) not quite fit yet, were also very first-class birds. Cockerels numbered fifty-one; they were as a class much better than at Sydenham. First (Lady Gwydyr) was a fresh one, very good in most points, but slightly deficient in fluff and cushion, and a trifle narrow in tail. Second, the Palace winner, and fifth were both shown by Sir Henry Thompson; we much preferred the latter. Third (Pritchard) we much liked at the Palace, where he was v.h.c. Fourth (Taylor) a large bird of good profile, but narrow-tailed and with slightly curved toes: h.c. (Adye) the Palace third, here looking a little brown on wingbow. Mrs. Bagshaw showed an extremely well-built cockerel, rather wild, and a shade too dark on wingbow. Mr. Norris's two very young unnoticed chickens will be heard of hereafter. In hens, which were a fine class, there was another reversal of the Judge's decisions at the Palace: Mr. Mitchell's h.c. hen at Sydenham here went up to cup. She is a large bird of a good type, moderately feathered, but hardly as fine in markings as we like. Second at the Palace held the same position here. Third (Taylor) large and shapely, but wanting clearness of ground colour and distinctness of marking. The Palace first hen here descends to v.h.c.; the light being stronger brought the brown into relief, but the same cannot be said of the Palace third and fourth, which are here only h.c. and unnoticed; they are grand in colour, with fine and clear markings. Pullets again seem to have struck the Judge very differently; they were sixty-three in number. The winner (Gibbins) was but v.h.c. at the Palace, and that was about her true position. The Palace winner, on the other hand, came here undeservedly down to v.h.c. Second (Sir H. Thompson) stood sixth at the Palace, while second and fourth there (Lingwood) here became third and fourth. We doubt if fifth (Ashworth) was even amongst the forty-five noticed birds at the Palace, and we prefer the Sydenham award. There were many good pullets in the class. In the Light classes, though the Judges at Sydenham and here were different, the awards were much more uniform. Cup, second, and we think third for cocks, went to the Palace birds, all good ones and well placed. 91 (Norris) and 103 (Percival) were also grand specimens: the former had a neater comb than most, and both had fine foot feather without a superfluity of hock; 107 (White), the Palace winner of last year, grand in all points but comb. Bad combs seem to be rather abundant in the Light classes this season. In cockerels, which were a good class, the Palace award was confirmed as regards Sir H. Thompson's cup bird; second (Lucas) very stylish, but far too long in leg; third (Breeze) shapely, but rather small; fourth (Ive) good in all but comb, and too much black in hackle; fifth we did not care for. Mr. While stood first and second with two very large well-feathered hens, not quite free from the prevailing fault of colour, which to a greater degree affected third (Lingwood), and more or less all the good birds in the class. The cup went undeniably to Mr. Nettlefold's Palace winning pullet in fine form. Even this beautiful bird is not quite free from the shade of buff on wings. Second (Morgan) and third (Mitchell) held, we think, the same position at Sydenham, fourth there being fifth here, the intervening bird being a well-marked pullet from Mr. Lucas's yard. 329 (Thorn) was a great bargain for six guineas, as if properly shown she could not fail to make her mark.

Dorkings filled about 280 pens. The Judge evidently considers white feet a highly important point. The cup for cocks and cockerels fell to the lot of Mr. Butler Smith's Dark cock, the cup bird claimed at the Palace for £20. Mr. Smith secured no less than five firsts in the Dorking classes—namely, the cup already referred to, first for Coloured cockerels, in the selling class, in the Coloured Dorking hen class, and in the Silver-Grey Dorking hen class. Mr. Cranston stood second for Coloured cockerels with a good all-round bird; Messrs. Smyth being second in hens with a bird which we rather preferred to first. She was perfect in colour, feet, and legs. The Palace winner was in this class only very highly commended. The Rev. Herbert Peel took the cup for Coloured hens and pullets with the pullet which held the same position at the Palace. She is very good in colour, with white feet, but with rather small toes, and the fourth and fifth toes not very well divided. Mr. Hulse and Mr. Cranston were the other winners in this class. Neither bird is perfectly white in feet, but we thought the third best in this respect. We specially admired Mr. Cranston's grand old Silver-Grey cock, a very model

of a Dorking, though past his prime. The Silver-Greys generally were superior to those at the Palace. The winning cockerel (Mulligan) was a good all-round bird though slightly ticked on breast. We noticed a failure in depth of colour on breast in the hen and pullet classes. The cup here went to Mr. Smalley for a pullet of pure colour though hardly as clear on feet as we could wish. In the variety classes most of the prizes went to Whites, which we thought very inferior.

Cochins numbered over four hundred pens. In the Buff classes Mr. Tomlinson carried off three out of the four firsts—namely, those for cockerels, hens, and pullets. He also took third for pullets. His winning hen and pullet were models of Cochin shape; the latter held the same position at the Palace, but has improved since then, being now more even in colour. The other winning hens were also grand birds; and Mr. Proctor's second-prize pullet is, we think, the bird which held the same position at the Palace, and which we much admired there. We could not endorse the cockerel awards of first and second; both are tricolor birds, a type which we hoped had been banished from the prize lists. Mr. Proctor's fine cockerels which we have previously commented upon stood third and fourth, and once more did not get their due. Mr. Percival's grand old bird, which won the cup at the Palace, here took the cup for best Buff cock or cockerel, and the cup for the best Cochin in the Show. The cup for Partridge cocks and cockerels went to Mr. Tomlinson for an old bird, good in most points though rather small. We almost preferred on this latter account Mr. Nettlefold's winning cockerel, whose chief fault was coarseness of texture of comb. The Palace cup cockerel was here if we mistake not only v.h.c. He now shows a patch of brown under his throat. A great feature of the Cochin classes was the extraordinary beautiful Partridge pullet to which the cup went, the only exhibit sent by her owner, Mr. Thorpe, hitherto little known in the poultry world. She is strikingly large and massive, with splendid feathering, and her marking is throughout nearly perfection. Her only fault is one wing being slightly slipped. Priced in the catalogue at £30, she was run up to thirty-four guineas at the auction. The winning hen was also a really fine bird in all points, though not so exceptionally well marked as the pullet. In Whites as usual Mr. Darby is amongst the winners. In cocks, however, he is beaten by his own champion of last year, which has twice since then changed hands at high figures, and here takes the cup for Whites. He stands second with a bird which is not quite out yet, but may later on take premier position. The grand old Palace cup hen is here to the front once more, though showing signs of wear. The cockerels are not so good as we have seen them in former years though the prizewinners are of considerable merit, and the same remark also applies to the pullets. The first (Darby) is beautifully shaped and in splendid condition, but wants size. We could not understand why Mr. Chase's pullet was passed over. In Blacks nearly all the firsts fall to Mr. Darby, though we must say that we do not think his present birds quite so magnificent as his Blacks of a few years ago, notably those which he sent to the Paris Exhibition in 1878.

Langshans had forty-seven entries in four classes. The winning cock (Oliver) was large and glossy, but wanted depth of chest. The first cockerel (Bush) was extremely brilliant in feather, though carrying a somewhat large tail. The cup went rightly to the first-prize hen (Mrs. Bennett), a really fine bird. We only remember to have seen one better, and that, if we remember rightly, came from the same yard. Hens and pullets alike show a waviness of comb which is somewhat of an eyesore to a fancier's eye.

Crève Cœurs were again not numerous, but, as at the Palace, the winners were of very good quality. Captain Turner again took three firsts, but the cup was awarded to a very beautiful pullet shown by Dr. Jackson.

Houdans had not as liberal a prize list as at Sydenham, and showed a falling-off in numbers, being only seventy-four as against ninety-six. Here we think the Birmingham Committee might fairly show more liberality. The cup again went to Mr. Marx's grand bird. Second (Wingfield Stratford), and third (Thomas) were also good. In cockerels Mr. Thomas's bird which we admired at the Palace was justly placed at the top of the list; second went to the Palace third (Mrs. Lane). In hens our selection at Sydenham (Turner) was rightly placed over Mrs. Lane's winner there, which here came third. The winning pullet also came from Mr. Turner's yard. The Houdans were on the whole good classes, though hardly so even throughout as at the Palace.

La Fleche had here two classes, but were not particularly good. Mr. Calvert and Mrs. Ricketts each won a first.

Spanish were neither so numerous or so good as at the Palace. The cup went to an old cock (Street), somewhat smoother in face than we have seen lately. The same exhibitor also stood first with a good hen, and with a pullet of nice quality of face though somewhat narrow over the eye. The winning cockerel (Wheaton) though good was not up to some we have seen this year.

Andalusian cocks and cockerels were the poorest classes we remember to have seen. The winning cockerels, though good in other points, had combs which were too heavy to be carried properly. The hens and pullets were better. Mr. Boissier and Mrs. Wilson respectively were the winners with birds very even both in ground colour and lacing. The seconds were equally good in lacing, but somewhat mixed in colour.

Leghorns were shown in pairs, an arrangement which apparently did not suit the exhibitors. The Palace winning Brown hen mated with a fair cock was in the first-prize pen. There were only five entries. Whites were more numerous, having twelve pens. Here again the Palace hen stood first, her companion being, we believe, the third cock. Mr. Fraser's beautiful cockerel here looked out of sorts, and was thrown by an inferior mate.

Minorcas had but three entries. Mr. Boissier's chance was spoiled by the ill treatment his pullet received from her companion.

Polish, though with two extra classes, fell some fifteen short of the Sydenham numbers. The beautiful White-crested were weakest, having but eight entries in four classes. This is indeed a pity, for they are about the most beautiful of the Polish varieties. Messrs. Partington, Unsworth, and Evans Broad showed good birds. Mr. Huish headed the list in Golden-spangled cocks and cockerels with two fine crested birds, probably father and son; they had much general resemblance to each other, and a common fault—a tendency to roundness of back. The difference in position perhaps contributed to the discrepancy between the awards here and at Sydenham. The winners in these two classes there were here passed over. The Palace cockerel especially was much admired for his beautifully coloured crest. The winning hen had a very distinctly spangled breast and large crest; second laced, but failing somewhat in parts. Both winning pullets had good crests and were well marked. In Silver cocks the Palace winner was again passed over. First (Adkins) wonderfully spangled on breast, with a fine crest, but rather dark at base of hackle; second same position at Sydenham. The cockerels were well selected and good in all points. The cup for the breed went to the first hen (Huish). This award we could hardly endorse, as the marking, though very distinct, was a something between spangling and lacing, and failed on the hackle. Second (Adkins), though rather too dark, had a good crest and well-marked tail. The first pullet (Adkins) was a beautiful crested bird of the medium type of marking; second only moderate.

Black *Hamburgs* by far pass the other breeds in numbers, in fact they nearly equal the other four put together. The class for cocks was not a good one. In cockerels Mr. Copeman took the cup with a very neat bird in brilliant condition, though slightly stained in lobe. The same exhibitor stood first for hens, and cup, second, and third for pullets, with very good birds; Mr. James Long being second in the hen class with a bird of the true type in brilliant condition. The cup Golden-pencilled cock (Cannan) was a wonderfully fine old bird, slightly stained in lobe. The first-prize Silver-pencilled cock (Fielding) had a pure white lobe and good comb and tail. Mr. Fielding's winning Golden-spangled cock was rather dark on breast, and with a pink tinge on lobe, but well deserved his position. The cup Silver-spangled cock (Ashwell) was a beautifully spangled young bird, perhaps a trifle too dark on breast and somewhat defective in colour of lobe. The Golden-pencilled cup hen (Fielding) was very finely marked throughout, as was also the first-prize Silver-pencilled hen (Beldon). The winning Golden-pencilled hen (Beldon) failed a little in wing-marking, whilst second was too dark in breast. The cup Silver-spangled hen (Mrs. Harris) was dull in colour and somewhat sooty in tail, and might, we thought, have given place to second (Beldon), a very good all-round hen.

Plymouth Rocks were shown in pairs. They looked better than at the Palace. First went to Mr. Bradbury for a nicely barred pair, though the cock was rather light in colour of legs. Second (Astley), the cock bad in comb, with a nicely marked hen.

Sultans and *Silkie*s were small classes. The winning pens in the former were rather yellow. The class was not as good as we have seen it. Mrs. Rickett's h.c. pair were the best in colour, though the hen was somewhat deficient in crest. Mr. Darby and Mr. Woodgate stood respectively first and second in the Silky class with good pairs. The Countess of Dartmouth showed a red-combed pair; but these did not seem to be admitted to competition.

Game were numerous represented, and were of much higher quality throughout than at the Palace. Black-breasted Reds of course made large classes. The cockerels numbered sixty, and the pullets fifty-seven. Captain Heaton is the hero of the season in this breed. His Black Red cockerel is the winner of three cups, including the challenge cup for this year, and he also took the challenge cup for pullets. His winning cockerel is a very perfect bird, though he might be a trifle larger and more powerful-looking in head. Second here goes to the same exhibitor, while of the rest we preferred 1540 (Lyon), passed over we believe through some error. Mr. Smith is a most able, painstaking, and conscientious judge, but his movements were, we thought, somewhat hampered by there being so many present during the judging. We think that at Birmingham some means should be adopted of excluding visitors from the classes which the Judges are actually engaged upon. The cup Brown Red cock (Brierley) and the first cockerel (Warner) were wonderfully good birds, while the cup Duckwing cock (Carless) was remarkable for his very beautiful colour. The winning Pile cock (Lyon) was of good type, though not perfect in head. The cup Black-breasted Red hen (Brierley) was a wonderfully good old bird, and took the cup over Captain Heaton's pullet, in consequence of the latter, though splendid in style, having a dark eye. The class of pullets was a wonderfully good one. In Brown Red hens the winner (Brierley) was a notable bird; the same exhibitor's cup and second pullet and Mr. Mercer's third-prize one were excellent, and the class a remarkably good one.

Of the rest we may note Mr. Thomas's cup Duckwing pullet and Messrs. Mather and Brierley's winning Pile pullets, the latter especially being of very high quality.

Aseel were but small classes, and with the exception of Mr. Dutton's first-prize cock (a Black Red) and Mr. Bryan's winning hen (a Black) contained nothing worthy of special mention.

Malays were good classes throughout. Mr. Futeher was first in the cock class with a rich-coloured dark bird of hard feather, carrying his tail rather high. The cup for the breed went to a powerful-looking cockerel shown by Mr. Bailey, while Mr. G. Burnell was first in hens and pullets respectively with very typical birds.

The *variety* class had only seven entries. First went to Mrs. Muir's Scotch Greys, second to Mr. Beldon's Buff Polish, and third to Messrs. Fowler's Pile Yokohamas.

Some extremely small and trim *Bantams* are shown. The first Black Rose-comb and first White Rose-comb, the latter also winners of a cup, and both shown by the Messrs. Crowther, are some of the very best we have ever seen, and took similar honours at the Palace. In the variety Bantam class a striking novelty appears from Lady Dartmouth's yards—viz., a pair of Bantam Andalusians, very perfect miniature Andalusians. Had they been a size smaller they must have won, as they are they well merited their v.h.c. First here went to neat Cuckoos, and second to Tailless. In Sebrights the Rev. W. Serjeantson was first and second with well-marked Silvers. Game Bantam were, as might have been expected from the classification, but few in number, and with the exception of Mr. Scanett's winning Black Red hen and Pile hen were not of any special note.

We are surprised to see so few fancy *Ducks* where such liberal encouragement is given to them. There were but two pairs of Mandarins and four of Carolinas, with special classes for each breed. The Call Ducks are very pretty, specially Miss Lawson's first-prize Brown pair. In Ducks the Rouens were considerably heavier than either of the other breeds, the cup pair weighing 21 lbs. 14 ozs. as against 20 lbs. 4 ozs. for the first-prize Aylesburys and 14 lbs. 12 ozs. for the cup Pekins, while the first-prize Goose scaled 45 lbs. 3 ozs. Mr. Wykes' cup Cambridge Turkey cock, and Mrs. Williams' second-prize bird, which was a Bronze Canadian, each scaled exactly 38 lbs. 8 ozs. : Lady Rothschild's winning cockerel 26 lbs. 8 ozs., Mr. Wykes' cup hen 22 lbs. 4 ozs., and Mr. Kenrick's first-prize young hen 17 lbs. 4 ozs.

The Judges were—Mr. W. T. Addie, Game other than Black Reds and Game Bantams; Mr. O. E. Cresswell, Dorkings, French, and Fancy Bantams; Mr. Dixon, Polish, Hamburgs, Ducks, Geese, and Turkeys; Mr. Leno, Brahmas and Selling classes; Mr. Montessor, Aseel; Mr. Smith, Black Red Game; Mr. Teebay, Cochins and the remainder.

TREDEGAR POULTRY SHOW.

THIS Show was held at Newport, Monmouthshire, on Tuesday and Wednesday of last week, and is noteworthy owing to its excellency and the liberal and perfect way everything connected with it is conducted. It is projected regardless of expense or profit, and there is no committee attached to it. It is generally termed Lord Tredegar's Show, as that nobleman is the chief patron, offering liberal prizes. Everything is managed through the Tredegar estate office, under the superintendence of Colonel Justice, his lordship's intelligent, courteous, and energetic agent. The Show just held, which includes general farm stock, is the sixty-fourth, and it is yearly increasing in magnitude. In 1874 the whole of the entries only amounted to 669, and this year they reached the total of 1078. In the first year named poultry numbered 315 and Pigeons 62, and this year poultry had 579 entries and Pigeons 138; or showing further the interesting increase, poultry numbered 116 more this year than they were last time, and Pigeons seventeen more than on the last occasion. This result is highly gratifying; but we are not surprised at it, as it only proved the advantage of dealing liberally and fairly with exhibitors and the public. Five shillings is the poultry entrance fee, and those exhibiting for this reasonable sum have a chance of winning £2 and 30s. as the ordinary first prizes; £2 specials in many of the classes, as given by Lord Tredegar; and another £2 given by Mr. Cordes, late M.P. for Newport, for the best bird in the Show. Apart from this, and differing widely from most societies, an admission ticket is sent to every exhibitor. Besides this generous treatment every exhibitor has the list of awards posted to him gratis on the day of the Show. Altogether this Show is more worthy of support than any other we know, and it gives us much gratification to observe its substantial progress.

For many years the Show has been judged by Mr. Enoch Hutton, Pudsey, Leeds, and that gentleman again officiated in a most satisfactory manner. This year's Show merited a very lengthy report, as the quality of the exhibits throughout was unusually good, but space forbids us dealing with them fully.

Game altogether were grand, and the special prize for the best cock in the different classes of this breed was gained by Mr. J. H. Jenkins, Mountain Ash, with a very smart Brown Red. The special in the hen classes went to Mr. C. W. Brierley, Worcester, for a very stylish specimen of the same sort. The same exhibitor was well forward in several of the other Game classes; and Mr. A. W. Evans, Newport, and Mr. R. W. Warner, Shrewsbury, had prize birds of merit.

Spanish were not numerous, nor were the specimens in these classes good. The best cock came from Messrs. Wingfield & Davies, Worcester, and the best hen from Mr. J. Bolton, Bristol; Lady Allsopp, Hindlip Hall, Worcester, was highly commended in both classes for birds extra good in head and face qualities.

Dorkings were fine, Mr. Butler Smith taking first in both classes with a young cockerel and an old hen. The latter gained the special in the Dorking classes, and she deserved this distinction, as she was of immense size and true in colour. Hamburgs were very numerous, Mr. S. Fielding, Trentham, taking the chief share of the honours here.

Cochins made a grand show, the first-prize cock in the Buffs from Mr. W. Cannan, Leeds, being very deep and sound in colour. Old birds were mostly the winners in this class, the young ones not appearing to be so forward this time as we have seen them. In Cochins any other variety Mr. A. E. Ward, Sale, Cheshire, was first with a White cock, which was awarded Lord Tredegar's £2 as being the best bird in the Cochin classes, and it was also awarded Mr. Cordes' £2 as the best bird in the Show, winning in all £6, and he deserved it, as we have never seen a more perfect specimen of a Cochin of any sort.

Brahmas are always strong here, and there was no falling-off this year. In Light cocks Mr. G. H. Wood, Bucks, had an easy win, his bird being a long way ahead of the second one, from Mr. S. W. Thomas, in condition. Mr. R. Mitchell, Bradford, had several prizes in both colours.

Polish and *French* were large classes, all the best exhibitors in the country having specimens here, and the chief prizetakers were Mr. H. Beldon, Mr. C. H. Huish, Mr. J. Rawsley, Mr. P. Hanson, Mrs. D. Lane, Mr. S. W. Thomas, Mr. C. Bloodworth, and many others.

Leghorns, *Minorcas*, and *Andalusians* were well shown by Mr. E. Gibbs, Mr. J. Hopkins, Mr. J. Hobbs, and Mr. E. Emery. In both of the variety classes Mrs. Muir, Margam, was placed first with wonderfully good Scotch Greys, the hen gaining one of the special prizes as being the best in several classes.

Ducks, *Geese*, and *Turkeys* made a splendid show, the size of many being most remarkable.

Bantams were numerous, and all kinds were represented. In the Game cock section no less than fourteen came in for a notice from the Judge; but this breed did not win the two specials for Bantams, as these went to Mr. T. F. Felps, Ross, for small, smart, well-coloured Cuckoo birds.

INSECTS INFESTING CANARY.—An answer is given to a correspondent on above in *Journal of Horticulture*. Some years ago I read somewhere that if a white napkin were spread over the cage for a few nights the insects would be found upon it in the mornings, and could be destroyed. I continually try this plan, and with complete success.—H. T.

FERTILITY OF HENS.—Some months ago I wrote to your Journal an account of the laying powers of two old Dorking hens in my possession. They have laid on the average five eggs each week from March till the end of the first week in October, when they began to moult. They were seven years old last March.—MARIAN.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
November.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
			Inches.	deg.			deg.	deg.	deg.	deg.	deg.	
Sun.	19	29.544	40.8	38.2	S.W.	39.8	47.0	29.5	72.4	28.4	—	
Mon.	20	29.392	36.4	35.4	S.W.	40.0	46.6	34.5	67.4	29.5	0.033	
Tues.	21	29.604	36.0	34.8	N.W.	40.0	44.2	33.3	74.3	27.8	0.130	
Wed.	22	29.576	49.4	43.0	W.	40.0	54.4	35.4	83.7	32.5	—	
Thurs.	23	29.585	51.9	50.0	W.	43.0	55.6	48.0	64.8	47.4	0.194	
Friday	24	29.277	47.9	46.3	S.W.	45.2	62.7	47.1	76.4	44.4	0.074	
Satur.	25	29.322	41.4	40.3	N.W.	44.8	47.5	39.9	74.2	33.6	0.012	
		29.500	43.4	41.1		41.8	49.7	38.2	73.3	34.8	0.443	

REMARKS.

- 19th.—Fine bright morning; sprinkle of rain 2.30 P.M.; fine afterwards.
 20th.—Fine early; afterwards unsettled and showery; fine moonlight evening.
 21st.—Very bright morning; afterwards dull, but dry throughout.
 22nd.—Dull and rainy at first; afterwards finer, with high wind; much warmer.
 23rd.—First part of day calm and fair; squally, with rain from 4.30 P.M.; very mild.
 24th.—Showery in forenoon; fine afterwards; moonlight evening.
 25th.—Rain early; fine greater part of day, then showery; lunar halo 9 P.M.

Although there was slight frost on Sunday morning, the temperature of the week has been considerably above the previous one.—G. J. SYMONS.



7th	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
8th	F	Quekett Club at 8 P.M.
9th	S	Royal Botanic Society, 3.45 P.M.
10th	SUN	2ND SUNDAY IN ADVENT.
11th	M	
12th	TU	Royal Horticultural Society, Fruit and Floral Committees at
13th	W	[11 A.M.]

GARDENING PAST, PRESENT, AND FUTURE.

IN these days, when so many landlords have been compelled to forego a great amount of their rents, and consequently are finding their incomes very much curtailed; when many are reducing their gardening establishments as much as they can, and when others are turning them into market gardens, it is not unnatural that the question of the decline of gardening should occur to anyone who considers the matter.

Some there are who assure us that gardening has declined very much indeed both in regard to the comforts and pecuniary rewards of many who follow the profession, and also in the amount of professional knowledge brought to bear on the numerous subjects that claim the attention of those who have made gardening their pursuit.

Now, I think it must be conceded that in many places the comforts and salaries of gardeners have suffered. Anyone who is at all acquainted with the gardening world must know of some place that has for years been a model in regard to the unstinted support and general encouragement held out to the gardener to enable him to command success in all branches of horticulture; but, alas! evil times have come, and we see curtailment in every direction, and the place becomes a worry and vexation. Any gardener who has been accustomed to receive encouragement and support must, of course, feel the change when it does come, and this constitutes one of the elements that go to form what we term "the decline of gardening." What a heartbreak it must be to many a man who has for years been in the habit of getting everything he required to enable him to keep a large garden in perfect order, to have to scheme as to how much work can be accomplished with the diminished number of his assistants! Seeing many things that he had previously taken pleasure in having in the best possible condition becoming eyesores from want of the attention requisite to keep them right!

Such is the case in not a few of the largest places in the kingdom, and it is much to be regretted. The number of smaller places owned by wealthy merchants, but who in many cases, after having laid out a considerable sum on a garden at first, grudge the annual amount required to maintain it as it should be, is considerable, and that such is the case is also to be regretted. Still, we can point to some of our large landed proprietors who are able and willing to afford what is necessary to enable a gardener to have everything as it should be; also to many other liberal-minded gentlemen who do not grudge the annual expense, and who take a rational

interest in their garden, and think it is not mis-spent money that is employed to maintain it.

As regards the question of the decline of the present race of gardeners in the matter of professional skill something can be said on both sides. In the cultivation of some particular plant or vegetable there may be a falling-off from what used to be; but, taken all in all, there is not much to justify the charge that the present generation is behind the last in professional skill. It is too much the fashion of some to be always reminding others of the "good old times," but I feel sure that very few of those who sing the praises of those times would care to revert to them.

The improvements in horticultural structures and heating arrangements have been very great within the last thirty years, and have been much in favour of gardeners of the present day. Compare the simple and effectual means of ventilating now-a-days with the innumerable sashes and pulleys that used to be required in the old-style ranges of glass, and which are still seen in remaining old houses in various gardens. Compare the old flues with the grand boilers and pipes we have now. These and similar improvements go far to make gardening in these days easier, and therefore honour is due to many in past times for the successful way in which they pursued their calling and overcame many difficulties that are now almost unknown.

It cannot be denied, however, that in not a few cases men claim to be considered first-rate gardeners who in reality have never thoroughly mastered their profession; and here there is ground for an appeal to all who earnestly desire to rise in their profession to remember that gardening is an art that requires a steady and devoted study, an attention to details that many fail to give, and at the same time a power of grasping scientific principles, which, when understood, are invaluable. Those who by intelligent study of books bearing on the subject; by continual attention to everything in any way connected with gardening; by practising the best known methods of cultivation; and by noting personal experience and comparing results with others; adopting others' plans when such are proved superior—those who do all this deserve to be, and in many cases are, eminently successful.

No man need take to gardening, if he has the slightest wish to succeed, unless he is prepared to throw himself with great earnestness into the profession. When a man does so he is on the road to success, and may some day become a recognised leader in horticulture. In spite of temporary clouds obscuring the horticultural outlook in some quarters, I feel sure that a brilliant future is in store for what should always be the most ennobling and elevating pursuit in life.—EXCELSIOR.

PLANTING ROSES IN WET AND HEAVY SOILS.

Our soil here (Bedfordshire) is locally known as "gault," but, more properly speaking, it is, I believe, boulder clay. It is of a pale yellow colour and full of small white chalk stones, which on being burnt become lime, and is very tenacious and retentive of moisture.

I have often been asked, "How do you manage to plant Roses in such soil in wet seasons like the present." My plan is a very simple one, but it is rather laborious, especially as I plant about five hundred every autumn. This is how I do it. First of all I stretch a line across the bed (which has been

prepared some months before), and beginning at one end about 18 inches from the outside I dig a hole and cast into it a good big shovelful of old potting soil or road grit, and upon this I place my Rose, carefully spreading out all its roots. I then cover them completely with some more of this light soil, and fill up with the gault. I then go to the next hole, and so on until the row is complete. We never trample round the plants until the ground becomes tolerably dry, then we tread lightly round each tree and muleh. I ought to mention that we use planks to stand upon when doing our work, so as to avoid trampling on the beds as far as possible. Nearly all my Roses are on the seedling Briar, and have been obtained from the Oxford nurseries. During the last four years about two thousand, both Teas and Hybrid Perpetuals, have been treated in this manner, and not a score of them have failed. Shrubs do equally well treated thus.

I have a sad tale to tell about the Roses on the Manetti, about three hundred in number, planted in October, 1881. They were fine plants when they arrived, and the wood seemed ripe and healthy; but in the following spring I found that in spite of mulehing, good drainage, and careful planting, at least one-third had died. The soil is too heavy for the foreigner. It simply dies in soil which seems to give full life and vigour to our English Dog Rose. I am well aware that people will say, "Would it not be better to wait until drier weather before planting?" I cannot say I think so. I hold that all planting should be completed by the end of the first week in November, and I have never found that Briar roots placed in light porous soil take any harm.

Many of the blooms that I exhibited this year were cut from Roses planted in the previous October. I fancy some persons may doubt this. Let them try the plan.—W. H. J.

[We give prominence to this short but very suggestive and useful letter. The method of planting is an excellent one under the circumstances. We have proved the value of a handful of fresh soil placed round the roots of a small plant when inserted, and a spadeful or two used in the same manner with Roses, shrubs, and fruit trees when the natural soil has been heavy and wet. The little extra labour involved by this care in planting is amply repaid by the satisfactory results that follow; in fact, the difference between careful and careless planting is not infrequently a difference between achieving success and incurring failure. The question of the relative merits of stocks for Roses is to a great extent a question of soils, and on this subject the remarks of our correspondent are opportune and useful.]

LOW NIGHT TEMPERATURES FOR GRAPES.

THIS year I have given the Vines under my charge much lower night temperatures than heretofore with the most satisfactory results. I think it is only fair to those who have so strongly advocated low night temperatures that all who have given the system a trial should, for the benefit of others, state their successes and their failures. In the first place I may say that all our houses contain different leading varieties, about half of them being Muscats. Previous to this year during the flowering period they were kept at a night temperature ranging from 67° to 70°. This year they were kept from 55° to 60°, and all, including the Muscats, set well. After flowering the night temperature was 60°, or as near that as the outside temperature would allow; on dull days it ranged from 70° to 75°, and 80° to 90° with sun. One and all exceeded my expectation, for without exception they finished well, my employers remarking that they were the finest and best-coloured Grapes they had ever had. The Vines are heavily cropped; as a proof, four rods of Gros Guillaume have an average of 4 lbs. to the foot. The treatment in every respect was the same as in former years, with the exception of at least 10° lower night temperature. I am aware there is nothing exceptionally low in the above figures, still much higher is advocated by some. Let others give their experience on the subject. I am fully convinced that were lower night temperatures more general we should not see so many Vines infested with red spider, and badly coloured Grapes as is now too often the case.—G. S.

AUTUMN FLOWERS.—*Calendula officinalis* flore-pleno has lately been making a grand display as a border flower. The seed was sown in spring and the plants treated as annuals, and their large,

double, deep orange-coloured flowers are now admired by all who see them at this dull season. *Campanula garganica* as an edging plant is attractive, its pretty blue bells and dwarf compact habit being great recommendations. It may be had in bloom from early spring to late autumn. I find *Zinnia Haageana* a useful annual for bedding purposes and for borders; is of a deep yellow colour, continues in bloom till the frost cuts it off, and is not affected by the wet. *Chrysanthemum segetum* has a lively appearance as a border flower. Another of our native plants which ought to have a place in all collections is *Malva moschata alba*; it is for the border and wild garden as beautiful as useful, continuing long in flower. East Lothian Stocks sown in the spring, grown on and planted out in the summer, are fine in the autumn. Plants so treated only need to be seen to be appreciated. *Eucomis punctata*, now established with us as a border plant, though not of bright colour, is interesting. That grand old *Fuchsia Ricartoni* does us good service in all places where a hedge of *Fuchsias* is required. This is one of the best for that purpose. Grown as a pyramid it makes a grand object for plunging on the lawn, and fine for the shrubbery. *Achillaea compacta* has been very fine in the border with its great plate-like yellow heads of flowers.—NORTH YORK.

CHRYSANTHEMUMS.

IT is some years since I have seen a show of Chrysanthemums; and being in London on the day of the Borough of Hackney Show at the Aquarium I availed myself of the opportunity, and was the more glad to do so, inasmuch as I had seen in September the collection grown by my friend Mr. Heywood of Reigate; and as I knew that he was an exhibitor was anxious to see how he came off; and as I have grown the flower for thirty years in my small way, and used every year in old Mr. Salter's time to enjoy the pleasure of visiting his winter garden and seeing all the new varieties of those days as they were coming out, my impressions of the Exhibition may be worth recording.

Since the days I mention the dressing of Chrysanthemums has developed into an art, as in the case of the Carnation and Picotee, and those who are not adepts in it stand but a poor chance. Whether this is well I leave to others to judge. For myself I do not admire it, involving quite an artificial style of flower and an immense expenditure of time and trouble. As I looked along the long line of boxes my first exclamation was, "The dresser has been very busy here I should think;" and so I found it to be the case. On my observing to an exhibitor, "I should think that those flowers have had half an hour each expended on them." "Nigher three hours," was the quiet reply. But even with this drawback the sight was not easily to be forgotten. The varied colours, the large size, and the curious forms of the Japanese made a very attractive exhibition. But is the game worth the candle? I saw at Mr. Heywood's hundreds of plants in the most robust health, but carrying, perhaps, two, three, or four blooms; and yet when I spoke to his excellent gardener Mr. Ridout, and asked him why he was not in the larger classes, his reply was, "Twelve are as many as we could do well. I might have put up twenty-four, but some of them would have been indifferent blooms—at least not up to the mark;" and when I saw the stands to which no prize was awarded I truly felt it was a difficult matter to come in in such a race. Mr. Heywood was first, however, as I should have anticipated.

I was struck with the fact how little of novelty there had been of late years in the incurved or Pompon varieties. The old and grand flowers, *Jardin des Plantes*, *Gloria Mundi*, *Nil Desperandum*, *George Glenny*, *Lord Derby*, *Beethoven*, *Golden Eagle*, *Queen of England*, *Empress of India*, *General Slade*, *Mrs. George Rundle*, and such-like flowers are still the best in cultivation; indeed most of the novelties in this class of late years have been sports from flowers already well known. The same remark applies to Pompons. We cannot now beat with new varieties the fine old varieties *Cedo Nulli*, *Trevenna*, *Trophée*, *Bijou d'Horticulture*, *La Vogue*, *Mrs. Dix*, *Duruflet*, &c. Now and then one crops up, such as *Golden Madame Marthe*, but as a rule the older varieties still hold the foremost place. By-the-by, it is a great mistake to show cut blooms of Pompons unless, as in *Pompon Dahlias*, in bunches.

It is far otherwise with the Japanese section: indeed twenty years ago they were unknown. In looking back at a report of the Crystal Palace Great Chrysanthemum Show in 1861, reported in his usual racy way by good old Donald Beaton, there is not even a mention of them; and when the first "Ragged Jacks" were introduced there was an outcry amongst the regular florists as to their hideous untidiness, and a regret expressed at seeing them, for they would inevitably spoil the larger flowers if they were hybridised with them. Some of us thought otherwise, and hoped to see a good deal of novelty introduced to this favourite winter flower, but I think few expected the results which have been obtained. Such flowers as *Elaine*, *Fair Maid of Guernsey*,

Peter the Great, Mons. Crousse, Madame Audiguier, Père Delaux, King of Crimsons, Fleur d'Hiver, Baronne de Prailly, Criterion, Comtesse de Beauregarde, &c., fully justify all that was anticipated of them; and certainly it was impossible not to be struck with the immense size of some of those exhibited at the Aquarium. Some of them were 9 and 10 inches across. And they have another advantage: they refuse to submit themselves to the *friseurs*, or, rather, they can do little for them. Many of them, too, when grown to a moderate size are excellent for bouquets and vases—better, indeed, than the larger and more formal incurved varieties.

I was not particularly struck with the specimens in pots, and fancy that I have seen them better grown. It is difficult to avoid formality in training; and as in the large pot Roses, I am not sure, however wonderful they may be for their size and the multitude of blooms, yet smaller plants more naturally grown are to the general run of people more acceptable.

Surely it is one great advantage that this flower possesses over many others, that it is everybody's flower. From the palace to the cottage all may, and many do grow it. It thrives in the murky atmosphere of our great towns, and, moreover, at a season of the year when few other flowers, except in the case of the wealthy, are to be had. It is pleasant to go into a greenhouse and find it filled with floral beauty in foggy November or chill December; it is pleasant to go into an exhibition hall and find it filled with an attractive collection of flowers; and for these reasons I think the fashion for the Chrysanthemum is not likely to pass away, as has been the case with some other flowers.—D., *Deal*.

[King of Crimsons is neither a new nor a Japanese variety.]

THE CUCUMBER DISEASE.

MR. JOHN GADD'S communication on this subject (page 470) is interesting, and I must congratulate him on getting rid of the disease so quickly. At the same time I must tell him that if his plants had the particular disease I wrote about in the Journal for November 9th much severer measures would be necessary for its eradication. The affection he speaks of appears at the roots of the plant, and has often been described in this Journal. The disease I mentioned has not, as far as I know, been described anywhere; and although specimens have been sent to scientific men, nothing satisfactory has yet been made known concerning it. The roots in my case are not affected; the disease shows itself first in the fruits, and then in the foliage and branches. Exudation of a gummy substance from the fruits, stems, and leaves is the principal feature; the fruits also curl round and generally refuse to swell, while those which do swell have patches in them which are hard and bitter. Cuttings from my plants carry the disease with them for certain, and it is almost certain that seed would do so too.

Mr. Gadd did not even clear his house, if I understand him, but kept the plant he had raised from a cutting in it. My houses were cleared several times, scalded, fumigated with sulphur, lime-washed and painted, seed obtained from a healthy source, and all to no purpose. I therefore think Mr. Gadd was extremely lucky in getting free as easily as he did. I said in my former paper that nothing short of complete isolation and seed from a healthy source will suffice; since then I have had further testimony that the isolation to be complete must include the attendant and his implements, for a nurseryman of my acquaintance has told me that he has been trying the isolation plan this summer and failed. I asked him what he had done as regards the attendant and his tools. His answer was that he could not manage to have a separate man to look after a Cucumber frame, and he did not think it necessary. But if the disease is of fungoid origin, as I suspect it is, we can easily understand that if the attendant does not carry it from one lot of plants to another it is more owing to good luck than good management; and I would advise that any nurseryman who unfortunately has the disease in his plants, and cannot afford complete isolation for a fresh stock, should give up the cultivation of Cucumbers for one season. It cannot possibly pay him to grow diseased plants, and in attempting to make it do so he may be spreading the infection far and wide.—WM. TAYLOR.

EARTHWORMS IN NEW ZEALAND.—The following interesting observations form part of a communication from Mr. A. T. Urquhart to the Editor of the *New Zealand Journal of Science*, and appear in the September number of that periodical. In October, 1875, I dug a trench on some newly cleared land—a raised beach at Manukau Harbour. The section then showed about 4½ inches of black mould, and a horizontal layer 1 inch thick of burnt clay, wood ashes, small stones, and pumice lying on a brownish-green arenaceous clay. The vegetation cleared was the growth of some thirty years. A portion of the land was left undisturbed. Measurements again taken a few

days ago gave an average depth of 1¼ inch of turf, 5¾ inches of black mould, and there was no perceptible difference in the layer of ash. An angular block of Trachyte about 25 lbs. in weight, placed in May, 1875, had sunk 1 inch, allowing for the turf. As the results of some accurate calculations as to the number of worms per acre, Mr. Urquhart gives results so considerably higher than Henson's, that he would have hesitated to publish them were he not in a position to prove them. Henson, it will be remembered by the readers of Darwin on "Vegetable Mould," calculates that there are 53,767 worms per acre in garden mould, and above half that number in corn fields. Mr. Urquhart's estimates, founded on digging about a quarter of an acre, as well as by a large number of tests on various parts of the fields—some that were under pasture for over sixteen years—gave from four to twenty-six earthworms per each square foot. The alluvial flats, slopes, and richer portions of the upper lands would average eight to the square foot, or say 348,480 per acre. In the uncultivated Fern lands worms are scarce. In New Zealand worms not only leave their burrows but climb up trees in search of food, this chiefly in the night time, though often until a late hour on damp warm mornings.—(*Nature*.)

SCRAPS ABOUT FRUIT.

RINGER AND TOM MONTGOMERY APPLES.—These are quite distinct Apples. Tom Montgomery has been grown in this neighbourhood extensively for many years. It was said to have been a seedling of Tom Montgomery's, but some doubted this. It is the same Apple as has been mentioned repeatedly in your pages lately—viz., Early Julien. This variety was sent here with a number of others from the Royal Horticultural Society's gardens, and was recognised as Tom Montgomery, and when cut and tasted quite agreed in every respect with that variety. Ringer is an Apple of the Keswick Codlin shape, not so elongated, but a good hardy kitchen Apple.—AYRSHIRE AMATEUR, *Kilmarnock*.

THE PRUNE AND CLUSTER DAMSONS.—I have a dozen trees of Prune Damson, none of which have ever borne a heavy crop, and I believe this to be the case generally. Twice only have I seen it with a full crop—in the deep rich loam of Mid-Kent and in the equally good soil of the Chilwell orchards near Nottingham. The Kent trees were closely pruned espaliers, and the Nottingham trees were unpruned standards, which proves that in a really good fruit-growing soil it will answer, but without it it fails. Cluster Damson, on the contrary, answers as well in our poor thin soil as it does in the Kentish orchards. Its growth is singularly robust, free, and healthy, and the fruit, always abundant in all favourable seasons, clusters so thickly upon the branches as to quite hide them from view. There can be no question that it is the best of all Damsons for market fruit-growers.—EDWARD LUCKHURST.

PEAR BEURRÉ D'ANJOU.—This proves a really first-class Pear. The fruit is very handsome, of large size, very sweet and juicy, with a delicious acidity and pleasant aroma. The crop this year was full and fine, the first dish of it being ready for table the beginning of November, and the ripe fruit keeps so well that it will probably be good till Christmas. The tree is an espalier of the palmette verrier form; and although it is not a large tree now, it came so slowly into bearing that I have not hitherto been able to fully appreciate its great excellence.—E. L.

KITTATINNY BLACKBERRY.—Your correspondent (see page 474) should plant the Blackberry just mentioned in a favourable situation in the kitchen garden, say along his rows of autumn-bearing Raspberries, in rows 5 feet apart and 3 feet between the canes in the rows, and tie them to a couple of wires or pieces of string strained to small posts or sticks the entire length of the rows. This done, a good mulching of half-decayed stable manure should be placed between the rows; and next summer train the young canes or suckers proceeding from those planted now to the wires, one on either side the parent plant, cutting away all superfluous canes as the work proceeds, and in other respects treating them the same as summer-bearing Raspberries, for like them the Bramble bears fruit on the preceding year's shoots. I think the result will be such as to amply repay him for his trouble.—H. W. WARD, *Longford Castle*.

USEFUL PLUMS.—Plums that hang long on the trees are invaluable to those who have large provision to make for dessert and culinary purposes. No Plum in cultivation at this season stands higher in the estimation of cultivators than Coe's Golden Drop. When in prime condition the fruits are like honey to the palate, when partly shrivelled they are all that can be desired as a Plum. Reine Claude de Bavay under the same circumstances is a suitable companion to Golden Drop. They are worthy of all

care. They are both sturdy growers and good bearers on the wall in different aspects. They are not over-particular as to soil or situation, but should have liberal treatment. Coe's Late Red and Ickworth Impératrice are first-rate for tarts and preserving, hanging on the trees well into November, and are highly esteemed. They must, of course, be protected from birds, and as far as possible from drenching rains, so frequent at this season.—**PRUNUS.**

LANE'S PRINCE ALBERT APPLE.—I observe that one of your correspondents asks for details respecting this Apple. My experience of it has been most favourable; indeed I have more than once told Mr. Lane, sen., that he ought to make more of this Apple, as the more it is known the better it is liked. It is curious that in another column of the same issue (November 23rd) this Apple is mentioned as having proved a great success at Mentmore. By the kindness of Messrs. Lane I have been furnished with an account of their Prince Albert, from which I have extracted some details. This variety was obtained from a seedling tree in the garden of Mr. Squire of Berkhamsted, and was sent out by Messrs. Lane a few years since. It has been in great demand during the past season, as those who have tried the tree are planting it in larger numbers. It is a culinary Apple, lasting until March. The fruit is somewhat large, of a greenish colour, with a tinge or flush of red on the side next the sun; the flesh is white. The tree is hardy and succeeds in almost any soil, but it fruits best as a pyramid, though it does well as a standard. It rarely, if ever, fails to produce a crop. Unlike many varieties that require to be grown on the Paradise stock for early fruiting, Prince Albert is described as producing fruit the second year after grafting when grown on the free stock. Those who wish to obtain this variety should plant pyramids as the best form of cultivation for this Apple.—**E. BARTRUM, Berkhamsted, Herts.**

IN answer to "A SUSSEX AMATEUR" respecting Lane's Prince Albert Apple, I can very strongly recommend it as a most excellent kitchen Apple, one that with me never fails to give a crop. My soil is in first-rate condition, as I never spare manure, and periodically trench or dig the ground two spits deep, burying the manure at the bottom of the trench, so that I have always plenty of soil for my trees to grow in and feed on. I have not tested the keeping properties of the Apple, as it has always been a favourite for the mincemeat, and it is then perfectly sound, but I have no doubt would keep to the end of January. I find it a very free grower, having some seasons to shorten the shoots back 2 feet.—**GEORGE B. CLARKE, Woburn.**

OF HUMUS.

(Continued from page 498.)

AS many soils contain very little humus, and the most barren soils often contain it in abundance, it cannot be said, as was formerly erroneously supposed, that the proportion of humus present affords a sure index by which we can judge of their fertility. With the more correct information we now possess on the part played by humus in vegetation, it can be asserted only that fertile soils are usually characterised by its presence in considerable quantities, though such presence may be sometimes injurious; and Liebig appears to me to have spoken unadvisedly when, in his "Familiar Letters," he wrote that it is without action if the fixed mineral constituents serviceable to plants are absent from it." On the contrary, it will appear from other numerous and well-weighed statements of his, that the presence of humus, quite independently of any mineral substances it might possess, has a most important influence in increasing and maintaining fertility. For one proof of this I have only to refer to my last letter, in which the absorptive properties of humus for vapour of water (1) are dwelt upon. And this valuable function of absorbing water is an indication that humus possesses other and, as Ville maintains, more useful properties—"It fixes ammonia in the soil, so as to prevent its being carried off by rains."

Ammonia may exist in the soil in three conditions—(a), as gaseous carbonate of ammonia; (b), as ammonia physically condensed on the surface of the particles of soil, as happens when charcoal is exposed to this gas—a property apparently dependant on its porosity; (c), as ammonia chemically combined, which takes place whenever it comes in contact with the acids formed during the decomposition of animal or vegetable substances.

The experiments of Boussingault and Lewy have shown that in most cases the gaseous ammonia existing in the soil is minute in quantity, and it would appear from their investigations that the physically and chemically combined ammonia also (b and c) is present in the generality of soils in small amount; but still these

three causes of storage in fertile soils must exercise an important influence, and Liebig concludes that "soils which contain much vegetable matter absorb more ammonia and retain it more firmly than soils which are poor in decaying vegetable matter"—in other words, as they contain a greater or less per-centage of humus.

It may be remarked here that the degree of decay which the inorganic matter of a soil has undergone must materially influence the question whether the ammonia which is stored by a soil is physically absorbed or chemically combined. As the condition of pure humus is more nearly attained, so the quantity of ammonia absorbed (b) will be greater; whereas, during decay and the formation of the acids of the humus group, the quantity of ammonia combined chemically (c) may be the more important. The composition of humus is very complex in its chemical character, and the knowledge possessed of it is confessedly incomplete. Even the results of the analyses of many of the bodies which are supposed to be generated as the decay of humus proceeds, such as ulmin and ulmic acid, humin and humic acid, are not in all cases accordant. "Either several distinct substances have been confounded under each of the above names, or the true ulmin and humin and ulmic and humic acids are liable to occur mixed with other matters from which they cannot be or have not been separated."—"How Crops Feed," S. W. Johnson.) Berzelius discovered that there were two other acids existing in the acid liquid from which ulmic or humic acid has been separated, and these bear the names of apocrenic acid and crenic acid respectively. Mulder remarks that "in every fertile soil these acids (apocrenic and crenic) always occur together in not inconsiderable quantities. When the earth is turned over by the plough two essentially different processes follow each other—oxydation, where the air has free access: reduction, where its access is more or less limited by the adhesion of the particles, and especially by moisture. In the loose dry earth apocrenic acid is formed; in the firm moist soil, and in every soil after rain, crenic acid is produced, so that the action or effect of these substances are alternately manifested."

While the precise constitution of all these substances may be a matter of doubt therefore—and may remain so while the difficulties of procuring them in a pure state are unconquered—their existence in the soil, their production by humus, and "their importance in agricultural science are beyond question." If, also, it cannot be said to be proved that humus is absorbed by plants, the evidence in the matter is in the favour of its nutritive functions. "While no one denies or doubts that the last products of the destruction of organic matter—viz., the carbonic acid, ammonia, nitric acid, and water, together with the ingredients of ashes, chiefly nourish agricultural plants, no one can deny that other bodies may and do take part in the process." But although crops on the farm are rarely raised without the concurrence of humus, or at least without its presence in the soil, it is by no means indispensable, as I have already observed, to their life or full development.

In the decay of vegetable matters buried in the soil many other acids than those above named are produced; but as many of these can exist only temporarily as the results of fermentation and decay, and for the most part pass into carbonic acid, we now turn to the influence of carbonic acid in the soil. "Up to the present," Ville says, continuing his remarks upon humus, "these functions have not appeared very important, but now the utility begins to be evident. It absorbs the oxygen of the air, and afterwards undergoes a slow, inappreciable, but real combustion. It thus becomes a source of a gradual but uninterrupted formation in the soil of carbonic dioxide, which is less useful on account of the carbon it furnishes to vegetation than for the solvent power which it exercises with regard to certain minerals, and especially calcic phosphate and limestone." "We shall prove the truth of this fact by a very simple experiment. Grow two plants in calcined sand, one with the aid of humus and the other without, giving to both the same quantity of chemical manure. In both cases the yield will be exactly the same, but analysis will show that there is more calcic phosphate in the crop obtained by the aid of humus than in that grown by the sand alone. Humus, therefore, helps to supply the plants with phosphate."

"Humus can in certain cases produce a still more useful effect, for in a measure it increases the yield. This happens when the humus is associated with calcic carbonate."

"To prove this we will make four fresh experiments. In the first place we will grow some plants in calcined sand, the soil being provided with nitrogenous matter, and all the necessary mineral matters which must be employed in these conditions with the exception of calcic carbonate. If 22 grains of Wheat are sown the crop will weigh from 307 to 337 grains. This yield is

not altered by adding humus. Add humus to the sand and the crop does not change; substitute calcic carbonate for humus and still there is no change; add at the same time both humus and calcic carbonate and the yield is increased in weight to 475 grains. These facts being practically of fundamental importance I subjoin the following table:—

	Nature of Soil.	Yield Grains.
1. Normal manure—	calined sand.....	337
2. " "	limed sand.....	337
3. " "	sand and humus.....	337
4. " "	sand with lime and humus.....	475

Ville gives the name of normal manure to "a mixture of phos-

phate of lime, potash, lime, and a nitrogenous material."—
INQUIRER.

(To be continued.)

BECKETT HOUSE, BERKS.

CHARMINGLY situated within a mile east of the Shrivenham station of the Great Western Railway is Beckett House, the picturesque residence of Viscount Barrington. It is a fine stone building in the Tudor style; was erected in 1829 from drawings made twenty or thirty years previously by the Hon. Thomas



Fig. 87.—BECKETT HOUSE.

Liddell, and stands on a slight eminence in the midst of its own beautiful and well-kept grounds, a grand feature in which is an extensive sheet of ornamental water immediately in front of the mansion, and extending from east to west of it, and which is stocked with a variety of aquatic birds, including wild ducks, which, flying hither and hither in the sunshine, add not a little to the characteristic beauty of the place. The banks of this lake, for such we shall call it, are planted with such flowering trees and shrubs as Lilacs, Laburnums, Guelder Roses, Syringas, &c., and in spring their flowers fill the air with their perfume, thereby adding sweetness to the pleasure that a stroll through these beautiful grounds at any time affords the visitor.

Adjoining the west front of the house and communicating with the interior of it is a handsome conservatory, 55 feet long, 25 feet wide, and of proportionate height, and having a tessellated tile floor. A house of this size takes a large quantity of plants to fill it. At the time of my visit (August) the centre was filled with two large plants of *Dicksonia antarctica*, surrounded with smaller plants of Palms, *Ficus elastica*, *Acacias*, *Abutilon Boule de Neige*,

Begonia semperflorens (a very free-flowering variety), &c., *Dracæna Veitchii* forming a background, and grouped with well-flowered plants of *Pelargoniums*, *Fuchsias*, *Begonias*, *Hyacinthus candicans*, *Caladiums*, *Eucharis amazonica*, Ferns (among which were a few fine specimens of *Adiantum cuneatum*), &c., all of which were arranged with good taste and to the best advantage under the immediate supervision of Mr. W. Meads, Lord Barrington's energetic head gardener. Planted out at one end of this house is a very large specimen of *Camellia imbricata* in fine condition, and from which ere long expanded blooms may be cut by the hundred. The back wall is completely covered with *Ficus repens* and *Lemons*, the pillars being embellished with climbing *Roses*, *Plumbago capensis*, *Heliotrope*, and *Oranges*, the ripe and ripening fruits of the latter, together with the *Lemons*, being very effective when contrasted with the numerous foliage and flowering plants by which they are surrounded. The front and roof are draped with well-flowered shoots of *Trachelospermum jasminoides*, *Jasminum grandiflorum*, *Habrothamnus elegans*, *Passiflora Imperatrice Eugénie*, and *Tacsonia Van Volxemii*, the shoots of which

intermixing and depending gracefully give to the whole a natural and perfect finish.

Descending from the conservatory to the terrace, whence fine views of grassy slopes, noble trees, and charming vistas are obtained, one of the latter—due west, with the church in the distance, whither a broad walk or drive leads first over the ornamental bridge which spans the lake within 60 yards of the mansion, and is built on a series of arches—being especially worthy of passing notice. In the immediate vicinity of this bridge are fine masses and trees of Yew (*Taxus baccata*), Weeping Birch (*Betula pendula*), Purple Beech (*Fagus purpurea*), &c., which I may add are effectively reflected in the pellucid waters in the foreground, and, together with the masses and variety of colour in the flower garden, and the expanse of rich green lawn close by, make a picture which for beauty of outline and variety of subject has few, if any, superior to it in the country.

The flower garden, which is geometrically laid out and capitally kept, is situate opposite the south and east fronts of the mansion. The beds were well filled with select varieties of plants, which were flowering profusely, and the combined effect of which fully demonstrated that the colours had been judiciously arranged; and the same may be said of the carpet hedging, which was very effective, and confined to a bed 90 feet long and 10 feet wide, running east and west in the direction of the low wooden footbridge, which is about 100 yards south of the one referred to above, and from which pretty peeps of scenery both under and above the latter are obtained—scenery which the pencils of a couple of fair artists were at the time assiduously transferring to their sketch books. Although the flower garden cannot be said to be a large one, it is stated that forty thousand plants are required for its embellishment every year. Before leaving the flower garden and grounds I may remark that they contain a few good Coniferae, including *Cryptomeria elegans*, *Taxodium distichum*, *Wellingtonias*, also some fine specimens of Elm and Beech; and at the west side of one of the bridges already mentioned, and which we cross to get to the kitchen gardens, is a summer house designed by Sir Christopher Wren which is said to contain a choice collection of old china, and to be two hundred years older than the mansion.

Leaving the flower garden and proceeding in a south-westerly direction, we come to the kitchen gardens, passing on the way thither several interesting spots, and which, together with Mr. Mead's cottage and the glass houses, are situate a short distance to the right inside the Shrivenham entrance to the park; in which I may remark are some fine trees, walks, and glades, through which pleasant peeps of distant scenery—including "White Horse Hill," six miles off—are obtained, and the branches of spreading trees prevent their being seen from the carriage drive.

The kitchen gardens, in three divisions, cover an area of 4 acres. The soil is a sandy loam inclining to clay, resting on a bed of the latter, and they are well and judiciously cropped with vegetables and fruit trees, which are also grown in this department, and, like trees in the generality of places this year, thinly cropped. Nearly two thousand heads of Celery are grown in beds containing four rows each.

Glass Department.—The first range we entered consists of two vineries planted with Black Hamburgh and Muscat of Alexandria, which were carrying good crops of average-sized and well-finished bunches. The next we came to is a span 90 feet long, and in three divisions, and running east and west, the first division being used for supplying winter Cucumbers; the second for stove plants, including Orchids for decorative purposes, the roof of this compartment being draped with well-flowered plants of *Stephanotis floribunda*, *Clerodendron Balfourianum*, and *Bougainvillea glabra*; and the third division, south side, was about to be filled with good varieties of winter-flowering Pelargoniums (250 plants), and the north side with such good free-flowering winter plants as *Bouvardias*, *Pentas carnea rosea* (a perpetual-flowering plant), *Begonias*, *Eranthemums*, *Gesnerias*, *Justicias*, *Lihonias*, *Poinsettias*, *Primulas*, *Cinerarias* (two hundred plants of each), and *Cyclamens*. This division during the summer months, while the winter-flowering plants are being grown-on in pits and frames, is devoted to the culture of Tomatoes and Cucumbers. Leaving this range we entered another span, which is devoted to the growth of Azaleas, &c., for conservatory decoration, and close by are three pits for Strawberry, Melon, and early Tomato culture, and in one of which I noticed a fine hatch of *Amayllis* Sir John Franklin (fifty large hulbs) just coming into flower for the embellishment of the conservatory, and for which purpose this variety as grown by Mr. Meads is admirably adapted. A short distance northward of this house is a Peach case 100 feet long, and planted with the following excellent and well-tested varieties—viz., Peaches: Royal George, Grosse Mignonne, Bellegarde, and

Barrington; Nectarines: Elruge and Hardwicke Seedling, all in fine condition and carrying good crops of large handsome fruit. Tomatoes President Garfield and Dedham Favourite are grown in pots along the front of this case, their growth being restricted so as not to exclude any light from the Peach and Nectarine trees, which are planted and trained in the usual way against the back wall, which is somewhat low.

Frame Ground.—A brick pit and sundry frames on hotbeds are used for the production of early vegetables and Violets (*Marie Louise*), which, as in most places, are in great demand at Beckett, as evinced by the fact that a cold pit 100 feet long and three four-light frames are devoted to their culture. Chrysanthemums (two hundred plants in 12-inch pots), Tea Roses, Tree Carnations, Eupatoriums, Salvias, Richardias, &c., which are now doing good service in the conservatory, were also located in this quarter; and a short distance off are situated the summer and winter Mushroom houses, fruit-rooms, and potting-sheds.

In concluding this notice of the gardens and grounds attached to Beckett House, over which Mr. W. Meads has presided during the last seven years with credit to himself and satisfaction to his employer, I may be allowed to state that Lord Barrington's kindness in throwing open on many occasions his park and grounds for fêtes and flower shows, &c., is highly appreciated by the residents of the surrounding districts; and for the good of horticulture and the community at large I would here express a hope that those occupying a similar position to Lord Barrington may, upon the perusal of these notes, be induced to follow the good example thus set by his lordship.—H. W. W.

[Accompanying these notes were two photographs, but our excellent correspondent will, we think, admit that neither of them is quite equal to the engraving which we had prepared in 1873, and which has certainly not been seen by many hundreds who have become readers of the Journal since that time, including possibly the present successful gardener at Beckett, Mr. Meads.]

DEW IN HOTHOUSES.

YOUR correspondent "CASUAL" quotes a part of the following sentence from me which occurs on page 447 of No. 1781:—"The temperature does not decrease so rapidly as that outside, owing to the presence of a warming apparatus and the screen of woodwork, glass, and foliage, which checks radiation, so that what is generally called the dew-point is not actually reached," and argues from this that I imagine the dew-point both indoors and out is at some fixed point of the thermometer. I do not understand how the passage will bear this construction.

The word "generally" is used because I am at that time speaking of dew-formation as it occurs from a falling temperature (the rules for finding out the point at which this occurs may be seen in any text book on the subject), as distinct from that which takes place with a rising temperature, and which is of the most importance to gardeners, but is not enlarged on in any text book I have seen.

Let me assure "CASUAL" that it is of little use for a man to commence indoor gardening till he has a slightly better knowledge of the subject than I am given credit for possessing. Your correspondent acknowledges that he does not understand the second conditions I mentioned under which dew is formed (not by different laws, mind), and I am obliged to come to the conclusion that he equally fails to understand what I meant to convey in the sentence quoted. I am as much disappointed about this on my own account as on his, for I always endeavour to be clear if I cannot always be correct; and if I have not made my meaning clear to practical readers I shall be happy to return to the subject, and will do my best to answer any queries which may be sent to me through the medium of the Editor, but I do not care to fill pages of this Journal unnecessarily with elementary matters, such as may perhaps be found better explained in school books than it is possible for me to explain them.—WM. TAYLOR.

POTATO STARCH.—The average consumption of Potato starch in the United States is estimated at from 8000 to 10,000 tons, and careful computations place the product for this year as follows:—Maine, 4000 tons; New York, 2500 tons; other sections, 500 tons; total, 7000 tons. These figures may be increased so as to bring the total up to 8000 tons, but it is not likely to go above that amount. In addition to the factories mentioned above there are five located on Prince Edward's Island, whose product for this year is estimated at 12,000 tons. This starch will probably find a market in Canada, and very little, if any, will come to this country. In addition to the 7000 or 8000 tons which will be the yield of our own factories there were at the beginning of the season 2000 tons on hand in small lots which had been carried over from last year, some of it being several

years old, but still in good condition. It takes 250 bushels of Potatoes to make a ton of starch, and its manufacture, which is very simple, is as follows:—After being thoroughly washed and freed from dirt the Potatoes are reduced to a pulp by means of a grater. The pulp, placed in a sieve, is washed by streams of falling water, the starch being carried through the sieve into a proper receptacle, and the fibre washed away as waste. The starch is carried with the water passing through the sieve into a stirring tank, in which it is washed from the finer particles of waste, and, being heavier than water, sinks to the bottom. It is then further cleansed in other tanks by washing and stirring, until the water is clear and is drawn off. The starch is then removed to a kiln, where it is dried and rendered fit for market. —(*American Cultivator*.)

LYGODIUM SCANDENS.

THIS is not a new Fern, but it is much rarer than it should be, especially with those whose gardens are small and space under glass limited, for it may be made to add another charm, and more fully furnish small indoor ferneries that even now, though crowded, are in some respects bare. The plant is a climber, and either in pots or planted out may be trained over a wall, up a pillar, or over bare and otherwise cheerless-looking rafters. It is nearly hardy, but it is far best to grow it under glass in a cool shady structure. Hardly anything need be said of its cultivation, for it is so easily grown that it would be difficult to understand under what condition it would fail to grow. Either in pots or planted out, if the soil is at all sweet, it is sure to do well, and it is just such plants that are wanted, especially by amateurs.

The fronds grow indefinitely, and so they are termed climbing. In winter they turn brown, and it is best to cut them down, when, as spring approaches, others will start. These may be trained to thin string and carried in any direction the cultivator may choose. As a pot specimen when trained on a balloon or pyramidal trellis it is by no means to be despised, for when well grown it is hardly second to any greenhouse species grown, and, indeed, much more imposing than most. For many purposes it is very useful for cutting, the fertile portion being very neat and beautiful. Its worst enemy is thrips, to which it is by no means subject unless grown in an atmosphere too hot and too dry.—SINGLE-HANDED.

INSECTICIDES.

IT may be assumed, without fear of contradiction, that gardeners do not love insects, although some by their industry and ingenuity teach lessons and astonish us; yet we are so solicitous for the well-being of the plants under our care that we cannot see them injured, even by the most instructive insect. Nevertheless, I do not think that the bulk of our craft love insecticides; at least one of the most noteworthy not very long since in the *Journal* admitted his dislike to them when giving advice as to the destruction of red spider by painting the hot-water pipes with a solution of sulphur. He then naïvely adds that as soon as possible it is washed off.

However, since insecticides are a necessary evil it is as well that we should know a few of those which have the least faults attending them. The proper qualifications of a good insecticide are that it should kill without injury to the plants, that it should be cheap and easily procurable, that it should not be unpleasant to the smell nor in appearance when applied. Without any one of these qualifications an insecticide will never become popular. Let us, then, examine a few, such as good cultivation, sulphur, Dalmatian powder, paint, limewash, and potash.

I place good cultivation in the first place, as, although not killing insects, yet with healthy robust growth they are abolished; consequently by care and attention, and knowing the wants of the plants, the use of any other insecticide is reduced to a minimum. Perhaps a better title for it would be insectiphobia.

Sulphur I place second, as undoubtedly the fumes or sulphurous acid are most deadly to all insect and animal life too; but the common practice of painting the pipes with a solution is not, I think, the best way to proceed. A better plan is to use sulphurous acid (not sulphuric, which is quite a different article), which is simply the fumes of sulphur pressed into water, which, when exposed, throws off the sulphurous acid. The method of using it is to pour out in plates or shallow pans placed on the staging or walks. It has these advantages over sulphur paint—that the work is done equally well without the risk of injury to tender plants, for if the paint be applied too strong and the piping overheated great damage may be done, even the destruction of a houseful of plants. Not only so, but the labour is trifling in comparison. The morning after the plates of acid have been put down, all the fumes having evaporated, the liquor remaining is only water, and may be emptied out, whereas the other unsightly stuff has to be washed off the piping.

Dalmatian powder is another good insecticide, but I do not remember having seen it commented upon in the *Journal*. I use it in two ways—sprinkling on the soil and for syringing. As a dressing on the soil it is best applied before it is brought under glass, about an ounce to the bushel. What pests it does not kill it drives away, leaving the soil in an excellent condition for potting or otherwise used, free from woodlice, worms, &c. I use it principally for destroying woodlice. For syringing 4 ozs. may be infused in a quart of boiling water, allowed to settle, and the clear liquor used; half a pint to an ordinary watering can full of water applied with a syringe and not washed off, taking care to wet the under side of every leaf. Two to three doses of this will be found very useful.

The next two insecticides will, I doubt not, meet the same objection as the first I named; but properly used paint and limewash are insecticides of the first order, as well as preservatives and ornaments of our greenhouses. When paint is being applied I would advise every plant that can be moved to be put out, all the ventilators opened night and day two days at least before commencing to drive out all damp. Commence with a thin coat, adding plenty of turpentine, which is most deadly to insects; and to combine remedies as the doctors do, instead of using the ordinary dryers use paraffin oil, which not only serves the same purpose, but used in this way is very beneficial. I think it is not sufficiently well known that this common oil may be used in this way, and many times at a distance from town would save considerable time in waiting for the ordinary dryers. The second coat should be applied thick to stop all cracks, which effectually imprisons all eggs which may be deposited there. Limewash, too, ought to be applied thickly on all new work for the same reason, and care should also be taken to have new slacked lime, if possible while it is hot. I would here strongly urge upon all gardeners to advise when new work is being put up that it should be plain, for it is only in such structures that we have a fair chance to master our insect foes. In ornamental structures there are so many out-of-the-way places for them to multiply that we are forced to risk the displeasure of the æsthetics and plead for plain houses.

Lastly, a few words about potash. I use it for cleaning the glass, swilling all wood and brickwork everywhere, in fact, inside, and find it useful both for cleansing as an insecticide; and I am inclined to think it has another good property—that is, a good dressing for the soil. I have used it as strong as one ounce to the gallon of water for syringing glass over plants, and it has not injured the leaves, but I imagine improved them. However, I would not advise its use in this way, at least not carelessly, but used as I have described it gets into every crack and crevice, dealing certain death to the insect tribe. I would strongly advise all who have not had a thorough experience of them to be very cautious in their use of insecticides and note carefully their results, as many are more dangerous than useful. Paraffin, for instance, when applied to plants in any form whatever kills the insects; but how often does it close the pores of the leaves and make the plants unhealthy, and as a consequence more liable to future attack from their insect pests!—HORTUS.

PLANTING SHRUBS.

IT occasionally falls to the lot of gardeners to carry out changes in grounds necessitating, amongst other work, the transplanting of shrubs. I had a hint on the subject the other day which may be worth bringing to the notice of gardeners and others who have not paid much attention to this subject. We have had several weeks of this kind of work, and a gentleman visiting mentioned this as, to him, a curious fact. Some two or three years ago he had bought in a number of good-sized ornamental shrubs and young trees, and lately his attention had been called to some of these which had been blown over, and the balls were in the same condition as when planted, no roots having passed into the surrounding soil. In my opinion these shrubs had been placed into holes cut to fit the size of their respective balls as nearly as possible. The harm would be greater through the soil having been hard or clayey, so that the plants, though surrounded with soil on every side, were practically isolated from it. Planting when the soil was too wet would also conduce to a similar result. It will be conceded that if a plant costs a large sum to purchase that it is worth a little care to secure its succeeding when planted.

Of the many hundreds of shrubs which have passed our hands this autumn it would be impossible for one to blow over in the condition of those noticed. In every case the hole has been at least twice the width of the ball of the plant inserted, sometimes larger, and with the exception of extra large plants a liberal

dressing of good soil or leaf soil was given to each plant. In addition to forming a large hole in the first place, when the plant is being placed in the workmen dig round the edges of the pit and loosen the surrounding soil still further. It is also well to take out the soil to one depth, and not merely to cup it out; while the ball of the plant, if very firm and hard, should be made so that the roots will spread out. In firming the soil do not tread on the roots, but round them.—B.



A CORRESPONDENT informs us that in connection with the Boston Ornithological Society recently held was a show of CHRYSANTHEMUMS and PRIMULAS, which attracted much attention. The Chrysanthemums in pots were very good, and the prize collections contained many fine specimens of some of the newest varieties in cultivation. The cut blooms were very good. Several boxes of handsome Japanese varieties were much admired, and the Primulas were quite an attraction. The Show altogether was a success, and another year may bring a greater number of contributors.

— A CORRESPONDENT, "P.," sends the following:—"Query to gardeners of twenty-five years ago. What is the difference between the variety SNOW'S WINTER WHITE BROCCOLI and VEITCH'S SELF-PROTECTING BROCCOLI? Snow's Winter White Broccoli of twenty-five years ago and the variety sent out now called Veitch's Self-protecting Broccoli appear to me identical. I am quite sure that the Snow's Winter White of the present day is very different from that grown twenty-five years ago."

— MR. M. TAYLOR desires to know "which is the BEST HARDY AMERICAN BLACKBERRY, and also if any firm makes a speciality of them," as they are not kept in nursery gardens about his district. Probably the Parsley-leaved Bramble and Kittatinny are as hardy and prolific as any, and those who possess stocks would do well to advertise them.

— MR. JAMES McBEAN, Cook's Bridge, Lewes, writes as follows:—"In the last issue of the Journal and in the report of the BRIGHTON CHRYSANTHEMUM SHOW I observe your remarks on table plants to the effect that 'the second-prize collection was in the opinion of many far before the first-prize lot.' By many, however, the second-prize lot were considered far too large, and more adapted for grouping; and when six plants are wanted for table decoration it is seldom we use pairs. The first-prize plants were well cultivated, with plenty of foliage, and nearly all of a size, the varieties being distinct."

— WE are reminded of the closing weeks of the year by the receipt of a packet of very beautiful CHRISTMAS CARDS from Messrs. Eyre & Spottiswoode, the Queen's printers. The cards of these publishers improve in artistic merit every year, and those now before us furnish many examples of designs and execution which can hardly be surpassed.

— "PRO BONO PUBLICO" wishes "to call the attention of nurserymen and seedsmen to one or two matters of importance connected with LABELLING. Having lately had several fruit and forest trees and shrubs from nurserymen, the names having evidently been written by some kind of lead pencil, which when exposed to the rains and the atmosphere have become faint, and in several cases quite illegible, which has caused great inconvenience, particularly with fruit trees. These names have, I presume, been written by what are called the copying lead pencils. I have used one of the pencils in question myself, and had very

nearly lost many names until I luckily discovered the error in time. In previous years it has been the custom of some seedsmen when putting up and labelling the seeds to stick the name of the seeds over the string, and when the string is cut the name is torn off with it. This may appear but a trivial matter, but it is liable to cause mistakes, and sometimes much inconvenience."

— "M." writes:—"The MILDNESS OF THE WEATHER here in North Pembrokeshire has permitted us to gather the following Tea Roses from the open garden all through November:—Niphotos, Cheshunt Hybrid, and Gloire de Dijon. On Nov. 28th I gathered in one of our plantations a fine spike of Foxglove. Primroses, red Ribes, and other common plants have been flowering freely. Not having been cut at all by frosts, the clumps of Schizostylis coccinea have been grand this autumn with their masses of crimson spikes, and the Chrysanthemums have had almost as fine blooms in the open border as under glass. Of some forty varieties of the latter we have now in bloom, by far the most beautiful is Lady Talfourd, with large flowers as well shaped as a good Dahlia; colour pink, petals quilled and incurved."

— WRITING ON TAR v. MEALY BUG, a correspondent, "C. M.," observes:—"Mr. Pettigrew in his interesting article on Culzean Castle, on page 390, says that 'Mr. Murray informed him that the Vines were at one time very much infested with mealy bug, but that by dressing them with a mixture of coal tar and clay he had entirely eradicated the pest without the slightest injury to the Vines.' I should like to try Mr. Murray's receipt if I knew in what proportion to use the tar, also if it is the ordinary gas tar used for asphaltting paths, &c. I suppose it would be necessary to paint the Vines completely, covering the eyes or buds. I should be glad to know if I may use the mixture freely without fear of injury, as I would prefer to use the ordinary mixtures if there were any probability of the tar causing the Vines to break badly in the spring." We shall be obliged if gardeners who have practised this plan will record their experience on the subject.

— VALUABLE illustrations and diagrams of some of the most INJURIOUS OF THE INSECTS that prey upon our food crops are about to be issued by the Royal Agricultural Society of England. The drawings of the insects have been most carefully executed by Miss E. A. Ormerod, Entomologist to the Society, and show the insects in their various transformations, and also the nature of their attack. The series of six large sheets contain beautifully coloured illustrations of the common aphid or green fly, the large white Cabbage butterfly, the wireworm, the daddy-longlegs, the Turnip fly, and the Beet fly. Each is exhibited on a largely magnified scale in the caterpillar, chrysalid, and perfect insect state, and are also shown life-size. A short account of their habits, methods of prevention, methods of destruction, &c., is printed at the foot of each sheet. These illustrations are admirably adapted for the use of teachers in rural schools, who by their aid can readily impart a useful knowledge to our agricultural population of some of the most destructive of insects, and thus enable them to combat more successfully the insidious attacks of these terrible pests.—(*Journal of Forestry*.)

— MESSRS. LETTS, SON & Co. confer annually a great boon on the public by the issue of every conceivable form of DIARY AND MEMORANDUM BOOK. Their energy and enterprise seem never to fail, but rather to strengthen by age. We have received a packet of these valuable annuals, with specimens of various forms, all of which are more or less indispensable to somebody. It is not only as diaries that these are useful, but they contain much information which people are in everyday want of ready to hand and easy of reference. We commend the diaries of Messrs. Letts very highly to all who require one, and a diary is a record which everybody ought to keep.

— REFERRING to SUTTONS' GREEN CURLED SAVOY Mr. J. Clarke, Brynkinalt, writes—"This Savoy may undoubtedly be termed the mainstay of our kitchen gardens for winter use. It can be planted in almost any soil with success, but where extra large heads are in demand the soil can hardly be too rich or the situation too good. Where medium-sized heads are required I usually plant 15 inches apart each way. I have a grand crop here now, about 1500 plants, all with heads of useful size, large enough for any purpose. I usually plant in different aspects, so as to insure a good supply successively, which with the above variety I find no difficulty whatever to maintain. Growers for market purposes will do well to give this variety a trial."

— WE regret to learn that after a long and useful career the monthly horticultural periodical, "THE GARDENER," published by Messrs. Blackwood & Sons, ceases with the issue for December. Under the editorship of Mr. David Thomson the valuable practical instruction contained in this work has been welcome to many gardeners in Great Britain, but in this fast age a month was too long for them to wait for gardening information however sound it might be.

CARROT AND PARSLEY DIFFICULTIES.

I HAVE been very much troubled this last season by Carrots and Parsley proving a total failure here. Seeing my first sowing of Carrots a failure I prepared another bed in a different part of the garden, and mixed the soil, which is very black and stiff, with sand and soot, but with no effect, for as soon as the seedlings were about an inch above ground they quickly disappeared. I tried them a third time, with a similar result. The attack was made by a little white worm. I have many times seen Carrots destroyed by this insect, but I have never seen a failure like my own this last season. Parsley came up freely and grew for a short time, when it turned quite yellow. On examining some of the roots I found numbers of this little destroyer. However, after about two months it started and grew a little. Both crops are greatly in request here. Of the former crop I obtained none; while of the latter, the season was far advanced before I had any. The soil is very heavy and black, and I think very unsuitable for the culture of the Carrot. I have learned several good lessons from your correspondents, and I shall feel much obliged if some of them would state their experience of such failures and their best mode of destroying this pest.—J. C.

FRUIT-GROWING ON CHALK SOILS.

As I have previously stated when writing upon this subject, in soils of an extremely chalky nature successful fruit-growing is far from being an easy matter, inasmuch as such soils are deficient in those chemical elements which are necessary to the production of high-class fruit, as well as to the longevity of the trees themselves; indeed, in some districts it is absolutely impossible to accomplish anything which has the least semblance of success without much trouble and expense. The practical man who has to contend with such soils as are here alluded to knows only too well the ailments and chief characteristics of the majority of young fruit trees after they have been planted two or three years. Only once allow the roots to get a firm hold of the subsoil, and let them remain there undisturbed, then you will experience the mortification of seeing the leaves assume that yellow sickly appearance which is a sure forerunner of poor crops and also of premature death. This applies principally to Peaches and Nectarines; but even such fruits as Apples, Pears, Plums, Cherries, and Apricots do not grow in that luxurious way which they do on most other soils.

From the foregoing it must not for a moment be supposed that success is impossible. For many evils there are remedies, and so there is for the one we are now dealing with. We must, however, confess that our remedy is rather a costly and laborious one, but on the other hand we would venture to assert that the cost would not be thought too much when success is the result. With Peaches and Nectarines I would strongly recommend the under-mentioned plan. Take out the soil to a depth of 18 inches or 2 feet; concrete and drain the bottom; at a distance of 4 feet from the wall on which the trees are to be grown build up from the concrete to

the ground level a 4½-inch wall—here there is ample space for the roots of good-sized trees. The top spit of soil and a shovelling should be cast on one side, to be mixed afterwards with the new compost, the latter to consist entirely of good turfy loam, the best that can be obtained in the locality. With this there should be incorporated a little well-decomposed stable manure, together with a light sprinkling of half-inch bones. The turf should be chopped into rough pieces, and the whole of the compost be turned over several times before being wheeled to the border. As the work of filling the border proceeds tread down the soil firmly. Plant young healthy trees, with their roots not more than 6 inches from the surface, and give a good mulching of half-decayed manure.

By many this plan will be thought to be rather an expensive one, and so it is, I admit; nevertheless there need be no apprehension as to the successful results which will ensue. Money well spent and work well done will redound to the credit—aye, and often to the pleasure—of anyone as long as they live. The following varieties may be relied on in districts like those to which these remarks are applicable:—*Peaches*: Early Louise, Early Rivers, Early York, Royal George, Dr. Hogg, Sea Eagle, Barrington, George IV. (a good old sort, now seldom seen), Prince of Wales, Walburton Admirable, Late Admirable, Salwey. The last-named is worth growing on account of its lateness, and although it is not one of the best-flavoured Peaches it is not to be despised if allowed to stand on a shelf in a vinery for about a week after being gathered. *Nectarines*: Rivers' Orange, Elruge, Violette Hâtive, Pine Apple, Victoria, and Pitmaston Orange.

Apricots, Plums, and Cherries are not so fastidious as to soil and situation as Peaches and Nectarines. They never appear to be quite at home in soils where there is an excess of chalk; those who would succeed with them would therefore do well to trench the ground 2 feet deep, and let the new compost consist of two parts turfy loam, with one part peat and one part well-decomposed manure, this to be worked in with the top spit and a shovelling of the old soil. It is also essential that where these are grown the borders should be well drained. Of Apricots no other sorts need be grown than the following three: Moorpark, Hemskirk, and Breda. Plums: Coe's Golden Drop, Green Gage, Ickworth Impératrice, Jefferson, Peach, Reine Claude de Bavay, Pond's Seedling, Victoria, Washington, White Magnum Bonum. Cherries: May Duke, Black Tartarian, Elton, Early Red Bigarreau, White Heart, and Morello.

We shall now refer to Apples and Pears by simply stating that the compost recommended previously will also suit these; the ground also should be trenched to a depth of not less than 2 feet. If it is necessary to point out one thing more than another with regard to Apples and Pears, it is as to the system on which they ought to be grown. Where the best results are desired, by all means commence with young trees, and grow them as pyramids or dwarf bushes. By so doing, and lifting them periodically, say about every three years, far better returns will be had than by allowing them to grow into large trees, inasmuch as other crops can be grown profitably between the rows without detriment to the trees themselves, and in nine cases out of ten it will be found that the crops of fruit will, in quality and quantity, be such as to give the greatest satisfaction. I can confidently commend the following sorts of Apples—viz., Early Red Margaret, King of the Pippins, Cox's Orange Pippin, Margil, Old Golden Pippin, Blenheim Pippin, Keswick Codlin, Lord Suffield, Mère de Ménage, Cox's Pomona, Alfriston, Warner's King. Pears: Jargonelle, Citron des Carmes, Beurré Giffard, Williams' Bon Chrétien, Comte de Lamy, Seckle, Marie Louise, Beurré Clairgeau, Easter Beurré, Winter Nelis, Doyenné du Comice, and Beurré Bachelier. With regard to the compost recommended for Peaches and Nectarines, a small quantity of peat ought to be used. I have always found the greatest possible benefit accrue from a judicious use of peat in fruit culture on chalk soils.—ET CÆTERA.

TYDÆA MADAME HEINE.

WHERE decorative flowering plants are required during the autumn and winter months few are superior to Tydæas. When well grown and cared for they will occupy the same place in our stoves in winter as Achimenes do in our conservatories during summer. There are now numerous varieties, and many of them exceedingly beautiful, but requiring considerable care to have them in the best condition during the winter. Many of the varieties are really more adapted for summer flowering, and it is next to an impossibility to retard them sufficiently to have them in full beauty during the dullest months of the year. This is very marked in those kinds that form underground stems, and thus allow of being dried off after flowering the same as Achimenes.

Some will not endure this drying system, for they really are what I feel justified in terming evergreen varieties, and do not form underground stems, but are perpetuated by striking the young shoots that are produced near the base while the plant is in active growth. *T. Madame Heine* is of this type, and a true winter-flowering variety. It is of a sturdy habit of growth with green foliage, and flowers most profusely from November onwards. By inserting cuttings at intervals a succession of flowering plants can be had the whole winter. I have grown many varieties of *Tydeas*, and after three years' experience with the above variety have concluded to discard all others for winter, as the stock of this variety can be increased so rapidly.

The cuttings strike almost as easily as *Coleuses* if placed in heat, kept close, and shaded from strong sun. They may safely be placed singly in small pots when inserting them, as with ordinary attention every one will root. Any light soil will suit this *Tydeæ* well.—SCIENTIA.

WINTER-FLOWERING PLANTS.

AN abstract of a paper read before the Young Gardeners' Mutual Improvement Society, Royal Gardens, Kew, by Mr. Garrett, foreman of the flower garden department.

To supply cut flowers and decorative plants during the winter months is a very important part of the gardener's duties in all establishments. Foliage plants are numerous, and are used largely for decorative purposes in winter, but ladies must be continually supplied with cut flowers for various purposes. Flowering plants must also be interspersed amongst the foliage and Ferns in the mansion as well as the greenhouse or conservatory. This continual supply is the great feature that has to be thought of, and the point where many gardeners fail, often at a time when a greater supply than usual is required for some special purpose. Requirements vary considerably in different establishments according to the tastes or wishes of proprietors, and such wishes have to be studied by the gardener.

The great secret in having flowers in winter is the careful selection of useful plants for the purpose, and good cultivation in the previous spring and summer. If sowing seeds or propagating plants is delayed too long in the spring or summer, the flowering period will be delayed in a corresponding degree. If the plants are well grown in the summer and receive proper attention, their successful flowering will be insured, but injudicious treatment in winter may render previously well-prepared plants useless. Where a gardener has a knowledge of what is required, it is the best and safest plan to select the best varieties of certain plants that suit his purpose, and grow a quantity of those that are certain to succeed. Collections are necessary for exhibition, and sometimes for other purposes, but selections are much more profitable generally.

EUPHARISES AND GARDENIAS.

Stove plants and Orchids flowering in winter are rather limited, but there are a few that are indispensable. Two of the most beautiful of the former are *Eucharis amazonica* and *Gardenias*. These, from their powerful perfume and beautiful appearance, are greatly valued. They require a good rest in a cool frame or house during the early autumn to ripen and prepare them for flowering when introduced to heat. *Eupharises* do not require repotting often if they are in good health and the pots are well drained. Plants that are unhealthy are uncertain for flowering purposes. Probably the most important part of *Gardenia* culture is keeping the plants clean. If they are allowed to become much infested with scale or mealy bug the best plan is to prepare young plants, and keep them clean and throw the old ones away. The points of the shoots are always first attacked by mealy bug, and the buds being there are so much injured by the cleaning process as to be of little use when expanded. They can be grown in pots or planted out as may be convenient.

ORCHIDS.

Orchids last a long time, and some of them will bear much rough treatment; indeed, much more than many other good plants that are not nearly so much valued. A few are happily useful for winter-flowering, and are therefore very acceptable. *Cypripedium insigne* is largely grown, and will last a very long time as flowering plants, or in a cut state in water. Many other *Cypripediums* flower at this time of year, but probably none are so plentiful as *C. insigne*. *Zygopetalums*, *Calanthe Veitchii*, *C. vestita* and its varieties, *Lycaste Skinneri*, and *Masdevallias* are the most useful in quantity for winter-flowering that I am acquainted with.

CHRYSANTHEMUMS.

Probably the most popular flowering plants for all purposes during the months of November and December are *Chrysanthemums*. A selection of a few distinct and useful sorts of these is preferable to a large collection. There are, however, several distinct forms, ranging from the small Pompon and Anemone-flowered to the large incurved, reflexed, and the curious Japanese section, all possessing a considerable degree of merit. They are propagated at different times from about the end of November until the following May, and much later

than this for small plants. Where large bushy plants are required the size of the flowers must be to a certain extent sacrificed, as the largest flowers are obtained from plants that are only allowed to bear a very limited number. As far as my experience goes it is better to propagate about the middle of February and grow the plants without a check, repotting as required until they are in 8 or 9-inch pots, which are sufficiently large for most purposes. An open airy position exposed to the sun, but not too much to high winds, should be selected for their summer quarters, when they will require constant attention and plenty of water if good plants are to be obtained. Liquid manure should only be supplied in moderate quantities until the buds are formed, when it may be given frequently. Stopping should not be practised on large plants after the middle of July. Small useful plants for stages or decorating may be obtained by placing four or five cuttings in small pots early in August. When they are rooted place them into 48-sized pots, and stop them once. They will flower about the same time as the larger plants. Neither should be subjected to fire heat if it can be avoided, as this invariably causes them to lose their lower leaves, especially in the autumn.

CARNATIONS.

Tree Carnations are not more difficult to grow to good-sized plants than *Chrysanthemums*, yet it is very seldom they are found in quantity. Probably their merits are not sufficiently well known. If they are grown principally in two or three distinct varieties scarcely anything can rival them as cut flowers for glasses or almost any purpose. *Belle Rose* and *A. Alégaire* are good red varieties, *La Belle* and *Purity* whites, and *Miss Jolliffe* a distinct perpetual-flowering variety of a pink or flesh colour. These are all distinct in growth, and are the best to be grown for plenty of flowers that I have seen. It is very important they should be propagated in the month of February to begin flowering in the autumn as large plants. When propagation is deferred later than this the plants will not flower so early in the autumn, neither will they attain the same size. They are best grown in frames until about the beginning of June, when they may be placed in the open air until the end of September. A house with a temperature of 50° to 55°, and air on all favourable occasions, will suit them all the winter. They generally do well in a soil composed of fibry loam, with a little leaf soil not too much decayed, and plenty of charcoal. The pots must be well drained, as Carnations of any sort will not succeed if the soil is allowed to become soddened.

BOUVARDIAS.

Bouvardias are extremely useful winter-flowering plants if prepared for that purpose, and are generally much admired. They strike freely in spring—about the end of March or beginning of April is early enough—and may be grown in pots, or planted out in frames as soon as established. I have found the best results from the latter practice, although the plants are not always so compact as when restricted in pots. They require to be frequently and evenly pinched until late in the summer to prepare them for flowering in winter. If planted out they will bear being transferred to pots about the middle of September, and will, if kept close for a short time afterwards, scarcely feel any check. A few standard single varieties are elegant; *Vreelandii*, or its larger form *alba grandiflora*; *Maiden's Blush*, and *Leeiantha*.

POINSETTIAS.

Poinsettias are very showy plants previous to and at the time of flowering. The flowers themselves are inconspicuous, and do not open until some time after the scarlet bracts surrounding them appear. To have dwarf plants in small pots they must, when growing, be plunged in ashes or some other material in light frames, where they can have plenty of air, and, except in the hottest summer weather, be fully exposed to the sun. When they are intended to be grown in small pots with one head of bloom, the middle or end of June is generally early enough to insert the cuttings, as they cannot be kept dwarf if propagated too early. They succeed best if inserted singly in small pots, as the roots are not injured so much when repotting. They are easily grown if proper attention is given them, but are among the first to suffer if neglected. The flowers form and the bracts change their colour about the beginning of November, when more heat may be applied, and if the plants are supplied with a little liquid manure it will help to develop and deepen the colour of the heads of bloom. The old *P. pulcherrima* is still the best for general cultivation. Its variety, *P. p. alba*, is sometimes grown, but is only useful as a variety. The so-called double form named *plenissima* was highly spoken of when distributed, but it does not seem to have been cultivated so much as was expected. If the plants are placed in a cooler temperature when the heads are developed they will keep good for six or eight weeks.

BEGONIAS.

Some of the autumn and winter-flowering *Begonias* are very effective when well grown, and are useful for supplying cut flowers, although some of them will not last very long in water. Their free-flowering habit will, however, compensate for this in a considerable degree, as the removal of one lot of flowers will often cause the plant to break, and so produce a quantity more. It is important to propagate them early in the season to have large plants by the autumn. Some of the best are *Weltoniensis*, *insignis*, *Knowsleyana*, *semperflorens*, its variety *rosea*, and *Ascotensis*. The new and distinct

Begonia socotrana promises to be a good winter-flowering variety by its appearance at the present time in the *Begonia* house at Kew.

PRIMULAS.

The single and semi-double forms of *Primula sinensis* and *Cinerarias* may be flowered in the autumn and winter by sowing the seeds sufficiently early in the season in March or April, and growing them when established in frames facing the north during the hottest weather. Primulas require a little heat in the autumn to assist them in opening their flowers, and to prevent their damping at the collar. The old double white variety, *P. sinensis alba plena*, still holds its own amongst the newer double kinds. It does not produce seed, and consequently has to be propagated by cuttings, which should be inserted in May or early in June.

Cinerarias are best when kept in cold frames up till the time of flowering. If they are subjected to fire heat they so soon become infested with green fly.

Salvias are useful for conservatory decoration in winter, but they are not of so much use for cutting, as their flowers so soon fall. The scarlet-flowered varieties may, however, be used with great effect as cut flowers by gaslight or for dinner-table decoration where they are only required for one evening. A very promising new decorative flowering plant for winter is *Impatiens Sultani*, as it is in flower nearly all the year round. If so it will be a valuable acquisition.

Among other useful plants which I can only mention now are *Plumbago rosea*, *Justicia speciosa*, *Linum trigynum*, *Euphorbia jacquiniæflora*, *Sericographis Ghiesbreghtiana*, and *Zonal Pelargoniums*.

(To be continued.)

PRUNING GOOSEBERRY BUSHES.

SINCE reading "LANCASTRIAN'S" remarks on the above (p. 477) I have carefully examined those bushes I have pruned and those I have not, and asked myself the question, Have I pruned too hard? Doubtless few prune so hard as I do, and yet I have pruned closer than ever this year. Still, I do not think any bushes the same size could carry a greater crop or better-sized fruit than these have done. Many visitors have remarked the heavy crop and splendid fruit.

It is an old saying, "Old notions die hard." This will apply here, for being taught that way of pruning the Gooseberry, and generally with the best results, why should we alter? I shall certainly try the other practice with some bushes I have in a young state, and note the difference. In the latter method there would be a considerable saving in labour, which is a great consideration to the hard-worked gardener. I should be pleased to see others give their experience on this subject, for, unlike the Apple or Pear, we seldom fail to get a good crop if birds can be kept away. I am lucky in this respect, having my Gooseberry quarter covered in with wire netting, and am ever anxious to gain experience, so as to increase produce with the least amount of labour.

While writing on this subject may I ask someone to explain why I lose one or two bushes most years when not more than from five to seven years old, while small branches on several wither and die from midsummer onwards? Last year I gave a heavy mulching of manure from the cowyard, but I am sorry to add that it has not had the desired effect. The soil is light, resting on a gravelly subsoil, and well drained.—S. J. A.

TRILLIUMS (AMERICAN WOOD LILIES).

THESE lovely flowers belong to the large, varied, and beautiful Liliaceæ, a family perhaps as attractive to the botanical and horticultural student as any we are acquainted with. Nor is this surprising when the numerous floral gems which it includes are taken into consideration; and there is no doubt the objects of these remarks are among the more interesting genera of the family. The character of the floral envelopes is particularly striking, the outer series of the perianth being green and foliaceous, while the inner one is coloured, representing the calyx and corolla in the dicotyledonous plants. They are extremely pretty, or at least the greatest number of them, some being curiously coloured and not very attractive. There is much written now by cultivators as to what hardy flowers should and should not be grown. But most of the Trilliums please everybody. Take for instance the lovely *T. grandiflorum* with its large white flowers and graceful habit. I have always known it to be admired, and rightly so, for it is one of our best hardy flowers. Not so useful as many other things for supplying cut flowers. Do not be misled. These are not the plants for that purpose. They are better adapted for border decoration in clumps sufficiently large to reveal what their decorative merits really are. They are grand for intermingling with hardy Ferns and Orchids, and with treatment such as is suited for these plants they will flourish.

It is necessary, to grow Trilliums well, that they should be

treated liberally. Granted that they will thrive fairly, especially *T. grandiflorum*, in ordinary border soil, yet they do far better if the soil is well prepared and a proper position selected in which to plant them. The common term applied to them is instructive—viz., "Wood Lilies." They are all natives of North America, inhabiting woody and low-lying damp positions where there is an abundance of vegetable matter. Plant them in a partially shaded position where they are not exposed to the hottest sunshine, as the flowers will last much longer. The soil I have found most suitable for them is a mixture in equal parts of good yellow loam, peat, leaf soil, and sand of a good depth, with a cool and damp position. If they are liberally supplied with water during the growing season large rhizomes are made for the following season, and they readily establish themselves, fine clumps being soon formed. The present is a fitting time to plant or divide them, as they are now in a dormant condition. But the sooner it is accomplished the safer, as the roots would be quite established before winter arrives. If there is any doubt as to the effect of the winter upon the roots, the safer plan will be to protect the crowns by covering the soil with leaves, bracken, or ashes during the winter, removing the same early in the spring, as they start into growth early in the year. Some of the varieties I know are not quite hardy in the north, or it would be safer to say that from some cause they disappear during the winter. This may be from excessive moisture. In that case it would be advisable to protect them with a bellglass. I am not aware that *T. grandiflorum* suffers in any part of the kingdom.

I have intimated above that they are all natives of the States of North America. One species, however, is found in Eastern Siberia, and I think one in Japan, but they both also occur in North America. The species and varieties described below are all under cultivation, although some of them are uncommon. But they can all be secured from good dealers in hardy flowers in this country, as well as from some North American dealers whose speciality is the collecting of the native plants. I have described the different kinds somewhat minutely, as there is much confusion among growers of them as to their proper nomenclature.

T. cernuum.—Stem about 9 or 12 inches high. Leaves sessile, broadly ovate, 2 to 4 inches broad; flower stalks short, recurved; petals white, ovate-lanceolate, one-half to 1 inch long; stamens shorter than the stigmas. This is well figured in "Curtis's Botanical Magazine," plate 954. It occurs from Newfoundland to Mackenzie River. It flowers with us in April and May, and has been known in this country ever since 1758. It is a very pretty and easily grown species—one of the earliest to bloom.

T. erectum.—Stems 6 to 12 inches high; leaves broadly or roundish ovate, sub-acuminate, from 3 to 6 inches wide; flower stalk longer than the flower, more or less inclined; petals ovate or ovate-lanceolate, three-quarters to 1½ inch long, very variable in colour—brownish-purple, white, or greenish, or tinged with pink. A very variable plant, known under the various aliases of *T. rhomboideum*, *T. foetidum*, *T. pendulum*, and *T. purpureum*. It occurs from Canada to North Carolina, Tennessee, and Missouri, and it flowers in this country during April and May, and was introduced about the same time as the last. There is a figure of the plant in the "Botanical Magazine," plates 470, 1027, and 3250.

T. erythrocarpum.—Stems 9 to 12 inches high, or less; leaves ovate, acute, or acuminate, 2 to 6 inches long; flower stalk erect or slightly inclined, often longer than the flower; petals ob-lanceolate or ovate-lanceolate, acuminate, wavy, three-quarters to 1½ inch long, white, reddish-purple at the base. Known also under the names of *T. undulatum* and *T. pictum*. It is well figured in the "Botanical Magazine," plate 3002. It occurs from New Brunswick to Wisconsin and Georgia, frequently on high mountains or cold damp woods. It flowers here in May and June, and does not appear to have been introduced until 1811. It is a very pretty species, and easily grown.

T. grandiflorum.—Stem from 9 to 18 inches high; leaves broadly rhombic-ovate, from 2 to 4 inches wide, blunt; flower stalk usually erect, longer than the flower; petals ob-lanceolate, often very broad at the base, 1½ to 2½ inches long, white, or more or less tinged with green. Known also as *T. rhomboideum* var. *grandiflorum*. It is also figured in "Curtis's Botanical Magazine," plate 855, erroneously under the name of *T. erythrocarpum*. It occurs from Vermont to North Carolina, and west from Wisconsin to Kentucky. It is the most handsome species in cultivation, having been introduced about the beginning of the present century, flowering during June and July.

T. nivale.—A much dwarfer plant, from 3 to 6 inches high; leaves ovate or ovate-lanceolate, blunt, 1 to 2 inches long; flower stalk short, erect, or slightly inclined. Petals oblong or ovate-oblong, blunt or acute, half to 1½ inch long, white throughout. It

is a very pretty little species, much smaller in all parts than all the others except *pusillum*, which I think is not under cultivation in this country. It flowers in April and May. Found from Western Pennsylvania to Kentucky, Iowa, and Wisconsin.

T. ovatum.—Stems 6 to 12 inches high, erect; leaves broadly ovate, bluntish; flower stalk erect; petals lanceolate or sometimes oblanceolate, sometimes very narrow, white or tinged with pale purple. This really appears to be a narrow-petalled form of *T. grandiflorum*, which it very closely resembles in habit and appearance. It is also known under the names of *T. obovatum* and *T. californicum*, and it is found from British Columbia southward in the coast range to Santa Cruz, California. It flowers in May and June, and is very easily grown. Introduced early in the present century.

T. petiolatum.—Stem very short, scarcely produced beyond the basal sheath; leaves ovate-elliptic to sub-reniform, 3 to 5 inches long, with petioles equally as long or even longer; flowers without a stalk; sepals erect; petals narrowly oblanceolate, 1 to 2 inches long, dark purple. This is very distinct on account of the stalked leaves. It flowers in April and May, and grows well in most places, but the dull colour of the flowers renders it unattractive. It has been cultivated in English gardens since 1810.

T. recurvatum.—Stems short, but longer than the last; leaves petioled, ovate to ovate-oblong, acute, usually so at both ends; flowers sessile; sepals recurved, acute; petals oblong-lanceolate, narrowed to a claw at the base, three-quarters to 1½ inch long, brownish-purple. Known also as *T. unguiculatum*, and it occurs from Wisconsin to Indiana and Arkansas. There is a variety of it named *lanceolatum*, which has sessile leaves and narrower petals. The typical form flowers here in April and May, and is of more recent introduction.

T. sessile.—A very variable plant, from 4 to 12 inches high; leaves sessile, broadly ovate, or even rhomboidal in form, cuncate or rounded at the base, 2 to 5 inches long; flowers sessile; sepals spreading; petals narrowly lanceolate, more or less acute, one-half to 3 inches long, brownish-purple or rarely greenish-white. Known also under the names of *T. viride*, *T. discolor*, and there are forms under the names of *Wrayi*, *Nuttallii*, and *angustipetalum*. The variety *Wrayi* has greenish-white petals, and was figured in the "Botanical Magazine," plate 3097, under the name of *T. discolor*. The plant is found naturally from Pennsylvania to Wisconsin, south to Florida and Alabama, and the forms are more or less local in their distribution. It is easily grown, and flowers in this country during April and May, and has been known since 1759, and was figured (typical form) in the "Botanical Magazine," plate 40.—N.

GRAPES FOR SEPTEMBER—INFORMATION WANTED.

DURING the last twelve months your pages have teemed with valuable matter on Vine culture. Mr. W. Taylor's experiences proved extremely interesting to me, as also have other communications, especially those on manure. The leading article on page 469 contained some valuable hints, and I hope will not be lost sight of by your contributors.

May I be allowed to ask a few questions? First, I may say I have to give up growing those thick-skinned varieties, as no Grapes are required here after Christmas; I must, therefore, grow for flavour and appearance. Why is not the Black Muscat more grown? What are its faults? Will it succeed best grafted? If so, on what stock? Is not this considered the best black flavoured Muscat grown? Will some experienced and successful grower give me a hint on its cultural requirements? Many Grape-growers give the Duke of Buccleuch a bad name; not so the writer of the article above referred to. Will this succeed grafted, or better on its own roots? The house I want to renew is a span, the border all inside. How would the four following kinds succeed, providing the Muscat of Hamburg is amenable to ordinary cultivation?—Muscat of Alexandria, Muscat of Hamburg, Duke of Buccleuch, Madresfield Court. I must exclude the Frontignans. Would the above four thrive in one house? What four or five kinds would your Grape-growing correspondents recommend me to grow to be ripe about the middle of September?—J. E. R. I.

CAPE COWSLIPS (LACHENALIAS).

AMONG neglected bulbous flowers we may fairly, as I think, class these quaint denizens of South Africa; and yet when well grown, as they were by the late Rev. Mr. Nelson of Aldborough or by Mr. Ollerhead, whose baskets of *L. luteola* were ever a sight to see and remember, few spring flowers can be more useful or beautiful. There are at least fifteen or twenty known species, perhaps many more not yet discovered; but that not generally

seen in gardens is *L. luteola*, which, being very variable in its coloration, has obtained many names. This plant is that most often seen under the name of *L. tricolor*; and Mr. Nelson once wrote me that it was grown in the windows of sundry flower-loving dames in his parish far better than in many good gardens. *L. pendula* is a distinct species with broad Tulip-like leaves.

L. tricolor and *L. quadricolor* are highly coloured varieties of the *L. luteola* type, but more rarely seen. *L. aurea* is a golden-flowered gem, but rather more difficult of culture than most others.

L. Nelsoni, a hybrid raised at Aldborough between *L. aurea* and *L. luteola*, is one of the most robust and floriferous of the whole group, bearing long stout spikes of rich apricot-coloured drooping bells, which dangle from the gracefully arching stems in a most attractive manner.

Lachenalias are properly speaking greenhouse bulbs. Too much of heat or of moisture, especially when at rest, is death to them. Their growth begins in October, at which season they are best potted, selecting the bulbs into sizes so as to insure equality of bloom. Good sandy loam suits them if on a well-drained bottom; and when in full growth, say from this time onwards until February, regular waterings and an occasional sprinkling of Clay's fertiliser or other hardy manurial stimulant is most serviceable in promoting strength of leafage and flower spike. Our plants generally bloom in February, and the spikes remain fresh until April or even longer. Indeed, of all the bulbous flowers I know, none endure fresh and fair in blossom so long as do these. Soon after flowering the leaves turn yellow and fall, and water should be gradually withheld; then, when all the leaves have dried off, place the pots in a sunny frame or on an airy shelf in the sun, and give no water until the bulbs are again turned out and repotted in September and October. Few bulbs have a more decided season of growth and season of rest, and if this is duly observed and the plants encouraged when growing all will be well. They increase very fast under good culture. *L. Nelsoni*, indeed, seems to increase in a most remarkable way, every bulb throwing up five or six offsets every season, all of which bloom the next year. Our engraving was made from some grand spikes which Mr. Nelson sent last spring shortly before he died, and long may he have a monument in all true gardeners' hearts as the raiser of *Lachenalia Nelsoni* and several beautiful new Daffodils.—DUBLINENSIS.

THE KNOWFIELD NURSERIES, CARLISLE.

HAVING a few hours to spare lately in the old border city it was but natural that they should be spent in the nurseries of Messrs. Little & Ballantyne, which both by their extent and the variety and excellence of the stocks of hardy ornamental deciduous trees, evergreen shrubs, and Conifers, also of fruit trees and Roses, are famed far beyond the district in which they are situated.

We are reminded at the very threshold of the great railway terminus of the existence of a seed and nursery trade of considerable magnitude by the new and extensive stores that have just been opened. This great building, which is one of the most complete of its kind in the country, is an index of the character of the firm—namely, well-established, yet active as with the vigour of youth. This structure is 100 feet long by 40 feet wide. There are seven floors of the dimensions named replete with every convenience for the conduct of an extensive agricultural and garden seed trade—lifts, speaking-tubes, steam engines for driving the seed-cleaning mills, stores, offices, &c., with a siding from the railway at the basement entrance, and telephone connection with the nursery. It is indeed one of the finest trade erections of the city, and certainly merits notice here.

The nurseries are upwards of a mile distant. The site being elevated and the stock exposed to the breezes from the Scottish hills assumes a sturdy and hardy habit of growth, which is necessary for enduring the severity of the winters in the north of England, as well as in the widely extending district "over the border." The extent of ground under cultivation exceeds a hundred acres. The approach to the nursery and residence of the proprietor, Mr. Watt, is rendered attractive by the wide borders on each side of the long drive, the fronts of which are formed into panels of choice Conifers in a small state, such as variegated Yews and Cypresses, *Retinosporas*, *Thuias*, and *Cryptomerias*, with choice Hollies, and a background, too crowded, of specimen Pines and choice deciduous trees. Amongst these was noticed the Snakebark Maple, *Acer striatum* or *pennsylvanicum*, with its curiously marked branches, and many fine varieties of Oaks and other trees too numerous to be particularised.

An interesting portion of the grounds is that devoted to choice specimen Conifers. One of the first that arrests attention is *Pinus Balfouriana*, a handsome conical specimen, possessing somewhat the habit of *P. cembra*, but very distinct by the white inner surfaces of the leaves and their dark exterior, also by their tufted arrangement at the ends of the branches. On this account it is commonly called the Fox-tail Pine, and the name is certainly appropriate. The plant, which is about 6 feet high, is reputed to be the finest specimen of its kind in this country, and it received the lion's share of attention



Fig. 88.—CAPE COWSLIPS—*a*, *LACHENALIA PENDULA*; *b*, *L. NELSONI*; *c*, *L. LUTEOLA*.

amongst its congeners at the Edinburgh International Show. Its hardiness has been satisfactorily proved, as it has passed without injury through a winter where the mercury of the thermometer fell 10° below zero. Near it was a compact specimen of the Korean Pine, *P. koraiensis*, attractive by its pleasing mixture of silver and green. It is worthy of a front place in all collections. The Weeping *Wellingtonia* cannot be passed in silence. There are many varieties that assume more or less of a pendant habit, but none so marked as this, many of the young growths pointing directly to the earth, as if they had been tied down; indeed, the drooping character is as pronounced as that of the Mountain Ash, and perfectly healthy. It is a distinct novelty, decidedly elegant, and the first-class certificate awarded to it a few years ago by the Royal Horticultural Society was not a mistake. *Abies amabilis*, the true form, was massive and fine, and *A. concolor violacea*, a glaucous variety, is very distinct and highly promising; while *A. Englemanni glauca* was extremely attractive, and should be planted wherever Conifers are grown. *Pinus sylvestris fastigiata*, which originated in this nursery, is perfectly dissimilar from the old Scotch Fir, the habit being more like that of the Irish Yew. Another plant of this habit, *Podocarpus coriacea*, ought to be more largely grown, being massive in appearance and very hardy. In effective contrast was Fisher Holmes and Co.'s Golden Yew, a fine ornament for small lawns, rockwork, and prominent positions that it is desired to render attractive with plants of this nature. For similar positions several varieties of *Cupressus Lawsoniana* represented here are admirably adapted, *C. L. lutea* and *C. L. alba spica* being both distinct and pleasing by the pale golden tint of the former and the chaste silvery hue of the latter; and similarly compact and worthy of note are some of the forms of *Juniperus virginiana*, notably *aurea variegata* and *glauca*. *Abies Alcockiana*, one of the finest of the Japanese Spruces, is admirably represented, and the sturdy *A. polita* arrests attention by its stout and strong needle-like leaves. It also hails from Japan, and its hardiness has been quite established, while it is undeniably distinct and ornamental; and the same may be said of the beautiful *A. Veitchii*. *Retinosporas* are largely grown, all the forms being represented, and they are increasing in popularity yearly, as they deserve to do, for no Conifers surpass them either in elegance or hardiness. *Thuja dolabrata* is also growing in favour, its bold Lycopod-like sprays giving a very handsome appearance, and it thrives well in moist positions. *Thuja occidentalis lutea* is extremely effective, being quite hardy, and of a brighter golden hue than *T. Vervaeiana*. Passing with brief mention many fine examples of the valuable *Thuias gigantea* and *Craigiana*, we leave the Conifers, and glance at other departments of the nursery.

It is extraordinary to see the number of Larches that are raised here. Some 3 or 4 acres were occupied with beds of seedlings. In these there must have been millions of plants, the greater number raised from Perthshire seed, a few beds from Tyrolean seed not being nearly so satisfactory. Mr. Greig, the experienced manager, says the trees from native or Scotch seed ripen their wood better than the others, and do not start into growth in spring so soon by ten days, and thus escape injury by frost. Larger transplanted trees in various sizes were extremely clean and fine, three-year-old stock being 4 feet high. Scotch and Spruce Firs are also provided on a correspondingly large scale, and there are large breadths of the sombre yet useful Austrian Pine. Many thousands of plants of the Corsican Pine, *P. Laricio*, are raised and regularly transplanted. It is only by this practice that the trees can be removed with safety, and the labour entailed necessarily enhances the price, otherwise the Pine which grows so freely would be more extensively planted, as no evergreen tree grows so quickly, and none is so seldom attacked by rabbits.

The collection of hardy deciduous trees and shrubs is varied and fine. Amongst the Oaks, *Quercus pedunculata nigra*, which originated here, is conspicuous by its deeply lobed and very dark foliage; *Q. austriaca sempervirens* is one of the best, and *Q. panonica* has very large green nine to ten deeply lobed leaves, and is very distinct and fine. The Aucuba-leaved Sycamore is a variety of promise, the leaves being mottled with gold somewhat like the common Aucuba, but the spots are smaller and more numerous. Van Geert's Golden Poplar appears to flourish well, the golden hue being very marked and the growth healthy. Another tree of value deserves notice—namely *Populus fastigiata gigantea*. This is probably the quickest-growing of all trees adapted for sheltering screens, and not having a great spread of branches. It is far more robust than the old Lombardy Poplar, and has larger leaves; it is, moreover, said to be quite hardy, which is a great advantage, as miles of country in the northern counties have been practically denuded of Lombardy Poplars during the past severe winters, hundreds of grand towering specimens having been killed or injured beyond recovery. Those, therefore, who contemplate planting trees of this habit should make a note of the variety above mentioned.

Rhamnus alpinus is ornamental by its rich green, deeply ribbed, Laurel-shaped leaves, 6 inches long and 3 inches across. Acers were very telling among the lighter foliage, especially *A. platanoides ginnala*, with leaves like *Ampelopsis Veitchii* in shape and colour; *A. p. purpurea* being strong and good, and *A. colchicum rubrum* free and very fine. Amongst Privets *Ligustrum amurense* is in great demand, being hardy, upright in growth, with dark stems and green leaves. The two variegated deciduous shrubs, *Cornus alba variegata* and *Philadelphus coronarius variegatus*, were highly attractive, and

ought to be more frequently seen in shrubberies. The leaves of the former are green, clearly margined with white, a free-growing bush, having a better effect than half the variegated stove plants; while in the leaves of the other shrub (the Mock Orange) creamy white prevails, especially when grown in a rather shaded position. The yellow-berried Guelder Rose is distinct and not common, and the old silvery-leaved *Shepherdia argentca* grows like a weed in the nursery.

Evergreens of all kinds are grown in numbers, but only mentioned for observing that of Laurels the variety *rotundifolia* is the finest and hardiest, this being the place for testing their frost-enduring powers. *Caucasia* is also hardy, and of a darker green; whilst *latifolia* is noticeable by its very long foliage. Of *Rhododendrons* there is a very extensive collection, all the leading most hardy varieties being included. In one enclosure a shrub of each variety has its name inscribed in bold letters on deal labels 2 or 3 inches wide. The names are written in pencil on wet paint, and thus really impressed; then marked over with printers' ink. Why? Not many people would guess. Because the wasps nibble at the lead until they clear it all off, while they do not touch the inked letters. Truly we live and learn.

Fruit trees in varieties suited for the north are carefully cultivated, and of Roses there were large and very numerous stocks, seven hundred thousand on the Briar and Manetti, with a few on the *de la Grifferae* stock, being raised annually; and here may be noticed a singular fact—on the plants of the two former not a speck of mildew was to be seen, while every plant on the latter was more or less affected with the mealy parasite, squares of each being side by side on the same kind of soil. The growths on both stocks were equally strong, and in that respect perfectly satisfactory, but the foliage in one case was a fresh bright green, on the other in some instances white as a miller's hat; but fortunately only a few comparatively were worked on the *de la Grifferae* for experimental purposes.

On the herbaceous and alpine grounds we cannot dwell, and it must suffice to say the collections of plants are large, this department evidently receiving careful attention; yet just two beds must be particularised—one a mass of Hyacinths (*Galtonia*) *candicans* with stems 5 feet high, an inch in diameter, the majority bearing fifty flowers; the other a mass of *Lobelia fulgens ignea*—a forest of fiery spikes of the same height as the *Galtonias*. It was difficult which to admire most, the purity of the *Galtonias* or the richness of the *Lobelias*. A mixture of the two grown as these were would create a sensation, and this hint may possibly not be lost. The able and enterprising managers of the London parks are ever seeking to produce fresh floral effects, and they might do worse than test the merits of this suggestion. We noticed also a superior strain of single Dahlias.

The glass structures in the nursery are filled with plants that are most in demand, including the best varieties of Azaleas, Camellias, Begonias, Zonal Pelargoniums, and others which need not be enumerated, but *Statice Butcheri* demands notice. It is apparently intermediate between *S. Holfordi* and *S. profusa*, but decidedly more effective than either, and undoubtedly a valuable summer-flowering decorative plant. The nurseries throughout were in excellent condition, and nothing could exceed the courtesy that was extended to—
A VISITOR.

EARLY WHITE GRAPES.

As your pages are open to a fair discussion on horticultural matters I hope you will allow me space to bring to the notice of the readers of your Journal White Frontignan Grape. The Sweetwaters are receiving their share of attention, and deservedly, as they are easily grown and highly appreciated; but I think the above-mentioned Grape should be more generally grown. Some may object to the smallness of the berry, but the flavour is unsurpassed by any you may bring before it for early forcing. It bears well, and remains fruitful as long as the Black Hamburgh. Although it is not such a showy Grape as Buckland Sweetwater, it is more decided in good qualities in many ways, as Buckland will not bear the trying ordeal of early forcing as well for a long number of years, having a disposition "to miss showing," especially when becoming old, the bunches become fewer in number and smaller, the berries less, and the setting more irregular. The same may be said in a greater or less degree of any Grape becoming aged, but there are more reliable sorts in this respect than Buckland Sweetwater. A good early Grape should hold a reputation for being first-class. Such a one we have in the Duke of Buccleuch, which is winning for itself the favour of all the best Grape-growers in the country, judging from the high position it has taken at different shows—a sufficient guarantee of the fitness of this Grape to be chosen as one of the best early forcers. Good cultivators no doubt do not need to be told this. The strong and early ripening of this Grape gives it a double advantage for early forcing, and nothing but mismanagement in the cultivator's hands could hinder a good crop being obtained. In addition to being a good early forcer the Duke has proved itself to be to some extent a good keeper, as I have seen it hanging quite fresh and plump in the

middle of January, having been ripe for more than six months.
—NORTHERN.

MAXILLARIA PICTA.

THREE properties are possessed by this plant that ought to recommend it to everybody. It is extremely easy to grow, it flowers freely at midwinter, and it is sweet-scented. Some, whose olfactory nerves may be more delicate than usual, may consider that the scent is rather too pronounced, and certainly a plant of moderate size will perfume a large house and a few blooms be quite sufficient for any ordinary room, but when not overdone the smell is delightful. Just now (November) it is here highly prized both for its odour and its beauty. In a floral arrangement when scent may be absent it will make up for the shortcomings of all the rest, and, as we have said, a few blooms are sufficient.

Two years ago a rather large potful of it in neglected condition came into my possession, and this was broken up into three and potted in a mixture of equal parts fresh sphagnum and charcoal, surfaced with growing sphagnum, and thoroughly well drained by having the pots half filled with potsherds. The plants have not been touched since, but as they are now grown solid they will have to be broken up at next potting time; otherwise they have had the treatment of ordinary stove plants, except that they have cost much less trouble, for beyond watering nothing has been done, and the reward is that from three plants in 8-inch pots we have a handful of flowers every week for a couple of months simply by retarding one and pushing one forward.

A few years ago we had only to say that a plant was an Orchid in order to frighten people from having anything to do with it; and though the old feeling is not quite removed yet, most gardeners are now aware that many Orchids are very easy to cultivate, and none more so than this.—S.

AN AMATEUR'S HOLIDAY.

ONCE again the holidays have come and gone. As usual, happy meetings took place with former friends among the flowers, and new acquaintances were formed, some of which seem already old. I may be able to present some things of interest to your readers respecting the shows, the gardens, and more fully the nurseries I visited.

Besides the more prominent exhibitions in Scotland I saw a number of "locals," and many things in these that would have done credit to any show. From these smaller displays, better than from the others, we learn with pleasure something of the extent to which gardening is prosecuted among our working classes in Scotland. We know what an important part the "kail-pat" plays in their families, and at some of these smaller shows collections and separate exhibits of vegetables were met that were not surpassed at any of the leading exhibitions. While in an amateur's garden I was amused by an old lady—by-the-by, she demurred good humouredly to my styling her old, and I promptly and humbly apologised. Bustling forward she exultingly challenged my friend, who had shortly before defeated her at their village competition, to produce the match of a fine Cauliflower she had with her. No hero of Tel-el-Kebir could seem prouder of his laurels than was the cheery old body—I again beg her pardon: she was only somewhat over eighty!—satisfied that she had triumphantly vindicated her assertion that she would beat the victor yet.

At one of these "locals" the best collection of annuals I have seen was shown by an amateur; at another Roses were scarcely inferior to any I saw elsewhere; at a third a neighbour of my own staged Gladioli that would have made their mark at any exhibition. But I do not think the display of flowers was such as to mark this as a really good flower year. I found a deficiency throughout in those flowers especially that bloom in spikes. Phloxes, for instance, were nowhere first-rate, and really good Antirrhinums were rare. Dahlias and many other flowers were scarcely to be seen in perfection either on the tables or in the garden. At the opening of one show I was surprised to hear it stated that in the district, which has long been noted for its florists, the Tulip had at one time been predominant. This had been succeeded by the Auricula, that in turn by the Pansy, and that now all of these had been superseded by newer and more beautiful flowers. And this where the memory of Lightbody is yet green! I thus translated the look of indignant protest on the face of a friend: "What ho, there! Campbell and Jeffrey and Gair. Treason in camp!"

Of the leading shows I saw in Scotland I would mention three as the more notable—the Rose Show at Helensburgh, where the collections of the Messrs. Dickson of Belfast and of Newtonards, with that of Mr. Smith, Stranraer, and others, the Pinks from Paisley, and the Pansies combined to form a fine display. What a glow those Roses from Ireland have! The usual joke was passed with the Messrs. Dickson about the desirability of getting hold of their varnish pot; but it seems it cannot be imported into Scotland. One bloom—an Alfred K. Williams—in one of their stands recalled and almost justified the words of a living writer: "If there were only a single Rose here and there upon earth, men and women would pass their years on their knees before its beauty." An ardent lover of the Rose informed

me that he and a brother rosarian, at a show in England shortly before, had loyally doffed their hats to the queen—in the person of even a superior bloom of the same variety.

The Glasgow September Exhibition maintained its established fame. The usual variety of florists' flowers was to be seen, and in most cases of capital quality. I would, if making exception at all, do so in the case of some of the Gladioli. In an extensive class including some really fine spikes not a few decidedly poor ones were observable. The Roses, too, owing to the weather were, with a few exceptions, not of much merit. The Pansies, as at the preceding Pansy Show in the same place, were beautiful. But why was such laxity in the naming of these observable? Where a card is laid down with the names exhibitors ought to adhere to one system of numbering. Here one did so by rows in order from back to front, and there another from left to right. I know that mistakes were made by those who could not check themselves by coming upon known varieties, and thus those who supply such orders are likely to be unjustly censured. This need not be.

The International at Edinburgh was too vast for me to say much upon now. Besides, on most of the exhibits I do not claim the ability to pass an opinion. Here again the Roses from Ireland were pre-eminent; and Mr. Dickson's blue ribbon, which I was pleased to see for the first time actually displayed on his stand, was another addition to the trophies of Belmont. Here, as elsewhere, Phloxes were poor. Some good Asters were present, especially a stand from East Linton. Hollyhocks, for some years conspicuous by their absence from our autumn shows, again made their appearance. Dahlias showed the effects of an unfavourable season and of frost on nights immediately before the Show. I take it as a matter of course that the Pentstemons of Messrs. Downie & Laird's collection carried all before them in both classes. Gladioli were well represented, and the same three exhibitors who at Glasgow the week before secured the first honours in their respective classes carried off the palm. But here again reprehensible carelessness in naming occurred, suggesting the probability of intending purchasers being misled. In one stand for instance—I need not say not a winning one—a variety did service under three different names. I would bespeak a little consideration in the placing of a flower that when properly shown vies with the Rose itself in attracting attention. I know that it is difficult to cope with every exigency and to meet every requirement in appropriate staging, but to give Gladioli a background of windows with, in the case of Glasgow, strong light falling upon them in front, does not do them justice. Were the object to discover defects if such existed, which they only too readily disclose in any circumstances, the end was fully attained. Happily the best flowers could stand even the severe test to which they were subjected, and visitors will find them out and throng to admire them even when they are shunted into a recess unworthy of them, and where less attractive objects would be doomed to comparative neglect.

At the risk of seeming invidious I would mention the grand Panerarium for which Mr. Souza, Touch Gardens, near Stirling, was awarded the first prize for the best greenhouse plant—a sample of the high-class culture which is noteworthy in every department of these gardens. The symmetrical Lapageria about 8 feet in height from Mr. Robertson, Springbank, Stirling, showed what skill can achieve even with comparatively restricted facilities.

In closing these random remarks I may state that all over the season four flowers stand out to be distinctly remembered—the Rose at Helensburgh already referred to; in another place a bloom of Thomas Mills; a spike of Gladiolus Camille, as seen in perfection on the first evening of the International; and another of Ondine, seen in the garden from which came the prize eighteen. Than these last two noble flowers I do not think it possible in all Flora's wide domain to find anything more captivating or more imposingly beautiful. I will next crave indulgence for some notice of gardens I was privileged to visit.—A NORTHERN AMATEUR.

ABUTILONS FOR WINTER.

FEW plants are more useful for various decorative purposes at this season of the year and onwards than Abutilons. Few plants have been more improved of late years than these, and instead of plants that become several feet high before they produced a flower, and then sparingly, we have those that flower profusely when only a few inches high, and in comparatively small pots.

To grow Abutilons for producing flowers in large quantities they should be planted out against a pillar, rafter, or where they can cover a wall. I think they show to greatest advantage against a pillar with their stem kept clean until they attain the desired height, and then the head can be allowed to form. Naturally they are of upright growth, but can be trained with but little care and attention to droop their branches in a downward direction. Standards grown in large pots or tubs would be very effective in large conservatories amongst Palms and other foliage and flowering plants. These plants possess one great advantage over many others in flowering almost the whole year; in fact they will do this if properly and liberally treated. When plants have attained a fair size in either pots or tubs they require liberal feeding and rich top-dressings frequently to keep

them vigorous and healthy, otherwise the foliage turns sickly, the wood becomes hard, and the flowers few in number. I do not, however, believe in keeping them growing and blooming year after year without giving them a season of rest. This opportunity should be seized when their flowers can best be dispensed with, and this undoubtedly will be during summer in the majority of gardens. If rested and well cut back during summer, and a portion of the soil removed from their pots or tubs and replaced with rich loam and manure, they will start again freely into growth and produce flowers in abundance during the whole winter and spring.

It is not so much of large plants that I am writing as of those of a suitable size for decoration in 4 and 5-inch pots. These plants can be grown well, and a succession of flowers produced through the whole year by striking batches of them. They are, however, most useful during autumn, winter, and spring. These are greenhouse plants, and thrive well under greenhouse and cool-frame treatment during the summer months. They will not flourish so well in the greenhouse during winter as in a house that is kept a little warmer. Under cool treatment during the winter their growth is remarkably slow—that is, in such houses where Azaleas, Epacrises, and other plants are accommodated, and only frost excluded. They do fairly well in conservatories where the temperature is not allowed to fall below 45° by night; but better, and continue to grow and flower with greater freedom, in an intermediate house where the temperature is maintained between 50° and 55°, according to external conditions. We give a number of our plants stove treatment, and very beautiful they are when arranged amongst other flowering and fine-foliage plants. While they are benefited by a certain amount of heat stove treatment is really too warm for them; they grow too rapidly, and in consequence become drawn, which soon spoils their beauty for decoration. In an intermediate temperature where air can circulate amongst the plants when favourable they grow more slowly, and continue to flower freely for a long time.

To maintain a succession during winter and spring two batches should be propagated, one in July and the other towards the end of August or early in September. It is useless to propagate for this purpose earlier, as the plants only become tall. The cuttings should be inserted in thumb pots, as every one will root if placed in close handlights in Cucumber and Melon houses, and kept shaded from strong sun. As soon as the young plants are rooted they must be gradually accustomed to cool treatment; in fact, we generally have ours in a cold frame by the time they are ready for 4 or 5-inch pots, which is the size employed here, and the only shift the plants get after they have filled the small pots in which they are rooted. This batch we grow in cold frames as long as the weather will allow us to do so without checking the plants. Growth from the time of rooting is slow, and the plants are sturdy and strong with fine foliage down to the rims of the pots. By the time the plants have to be housed they are showing abundance of flowers, and average about 4 feet in height. To have large foliage at the base and down to the pots, it is necessary that the wood selected for cuttings be well furnished with good foliage when inserted in the small pots. If small side shoots are employed the foliage for some time will be small, in fact the base will never be furnished with bold large leaves. We give preference to good strong cuttings, such as can be obtained by removing the end of leading shoots, and then the plants are well furnished from the commencement. They seldom lose their foliage in the operation of rooting if judiciously treated.

The plants employed in the stove are generally those propagated in September, which are not so forward as those rooted a month earlier, and are very useful in the stove after many of the earlier winter-flowering plants are past their best. This batch are small and dwarf to commence with, and continue to flower well on into spring before they become too leggy. As soon as they reach this condition they are at once cut down, and the strong tops again rooted. It is a good plan to root a number together in 5, 6, or 7-inch pots, and keep them during the autumn in an intermediate temperature in readiness to be potted any time about Christmas, so that they will be in good condition for replacing those in the stove when cut down. By so doing no gap is occasioned where a continuous supply of their flowers are required either for cutting or the plants for decoration.

While growing Abutilons must not suffer by the want of water, and when the pots are full of roots liberal feeding must be resorted to. Stimulants should be given every time watering is necessary, by which means the plants are kept in a healthy vigorous condition.

Abutilons are not particular about soil, and will do well in almost any compost that is rich. Good loam to which is added one-seventh of manure, with sufficient sand to keep the whole

porous, will grow them well. There are many varieties worth growing, but the following are good and useful for decoration in small pots—Boule de Neige, Fire King, Violet Queen, Aurelia, L. Van Houtte, and Marshal.—SCIENTIA.

ARAUCARIA BIDWILLI.

My thanks are due to Mr. J. Smith for his particulars concerning the introduction of *Araucaria Bidwilli*, as they remove what now appears to be an error of very long standing. Professor Dyer is responsible for the statement that one of the two plants of this *Araucaria* brought home by Mr. Bidwill was purchased by the Duke of Northumberland for one hundred guineas, as, when cones were produced by the specimen at Kew, he exhibited them before the Royal Horticultural Society March 5th, 1873, also before the Linnean Society, and included the above particulars in some remarks upon the history of the species. These observations were quoted in the *Gardeners' Chronicle*, the *Journal of Horticulture*, and *Nature*, but the "other paper" referred to by Mr. Smith attributed the purchase to the Duke of Devonshire, though not in 1872 as Mr. Smith states, but in 1873 and subsequent to the meeting of the Royal Horticultural Society mentioned above, and it is, therefore, doubtless simply an incorrect rendering of the original statement. The particulars I gave I have repeatedly heard mentioned at Kew, and, as far as I am aware, the published statements had never been corrected until Mr. J. Smith cleared the matter up. Professor Dyer is, however, so noted for scientific accuracy that it is impossible to understand how he could have been led into so strange a mistake. Perhaps he can explain it.—L. CASTLE.

CHRYSANTHEMUM SHOWS.

SOUTH SHIELDS.—NOVEMBER 29TH AND 30TH.

THE above Show was held in the Free Library Hall, Ocean Road, under circumstances that augur well for its future prosperity and permanency. The Society has received an amount of support and encouragement from the local tradesmen and gentry that was never anticipated. Last January a few gentlemen, including Mr. Thomas Binks, Mr. Adam Hope, and Mr. John Wright, formed a committee. Others soon followed, and before the day of the Show they had £100 collected. They offered £60 in prizes this year; hope next year to offer £100 at least. In framing their schedule they made Messrs. Cannell's catalogue the standard as regards the classes of the flowers. This arrangement was found to answer well, and gave great satisfaction.

The Exhibition was publicly opened by J. P. Wardle, Esq., Mayor of South Shields. He was also supported by J. T. Etringham, Esq., the President of the Society. The Show was considered very fair, and better than ever was seen in Shields before, many of the exhibits equalling those at metropolitan shows.

For the group of Chrysanthemums, fine-foliage and other flowering plants, Mr. Henry Smail, gardener to J. C. Stevenson, Esq., No. 1, Westoe, was deservedly first. His collection comprised Chrysanthemums, Palms, Zonal Pelargoniums, and Coleus, all neatly margined with Ferns. Mr. East, florist, Westoe, and Mr. Whiting, gardener to E. Walker, Esq., Shot Tower, Newcastle, took the remaining places.

For six large-flowering Chrysanthemums the Society offered £3, £2, and £1 respectively for first, second, and third. Mr. Corbett, gardener to W. N. Liddle, Esq., Bernwell Hall, was first with neat trained specimens of Mrs. Dixon, Mrs. G. Rundle, Julia Lagravère, &c. Mr. Blanchard, gardener to Dr. Gibb, Sandford Lane, Newcastle, was second with fine plants that might have been improved by a little more training. Mr. Smail third with smaller but very even plants. For three large-flowering specimens Mr. Corbett was first with Argend, Mrs. Dixon, Mrs. Rundle; Mr. Smail was second with similar varieties; and Mr. Allen, gardener to Henry Wilson, Esq., Westoe, was third. Mr. Corbett was first with Pompons, remarkably fine specimens, including Cedo Nulli and others. For four Japanese Mr. Blanchard was first with Elaine, James Salter, Peter the Great, and Fair Maid of Guernsey.

In the miscellaneous plants class Cyclamens, Primulas, and Zonal Pelargoniums were well shown, and in a collection of greenhouse plants Mr. Smail staged some very well-grown Camellias.

Cut Blooms.—For twelve incurved Mr. Brown, gardener to Mrs. Joicey, Whinney House, Gateshead, was first with good varieties of Mrs. G. Rundle, Fulgore, Mrs. Dixon, &c. This exhibitor also took first for twelve reflexed, twelve Japanese, and twelve bunches of Pompons. These included the chief varieties in each class. Mr. Annison took first for six incurved, six reflexed, and six Japanese. Messrs. Wilson, Allen, and Whiting also showed well in these classes. Three stands of Japanese, incurved, and reflexed blooms not for competition were kindly sent by Mr. Milner, gardener to Mr. Newall, Ferndene, Gateshead. These were by far the best among the cut flowers, and were much admired. Mr. Watson, Fenham, Newcastle, Messrs. W. Fell & Co., Hexham, Mr. W. East, Westoe, and Mr. W. Marshall, Florist, Mariners Cottages, South Shields, exhibited stands of plants for decoration, including stove and greenhouse and con-

ferous plants. Amongst cut blooms Mr. Garret, Hindley House, Stocksfield-on-Tyne, sent a superb collection of Zonal Pelargoniums. There was a stand of Primulas from Messrs. Cannell & Son, Swanley, Kent, and some Mignonette trained pyramidal shape from South Shields and Westoe Cemetery.

CHESTERFIELD CHRYSANTHEMUM SOCIETY.

NOVEMBER 28TH AND 29TH.

The above Society held their first annual Show last week in the assembly room over the Market Hall, a room admirably adapted for the purpose; and although it was considered late by several exhibitors, owing to the Committee not wishing to clash with any other shows in the immediate neighbourhood, it was pronounced to be by competent judges and growers the best show in the district. T. P. Wood, Esq., well known for his liberality, accords the Society his patronage as President. The Vice-Presidents include several of the leading gentlemen in the town. The arrangements were carried out under the superintendence of Mr. J. Hall (Hon. Secretary) and an influential Committee, of which the most prominent are Messrs. W. M. Hewitt, W. Slack, C. Auckland, and R. W. Proctor, and several of the leading gardeners in the neighbourhood, including Mr. J. H. Clements of Whittington.

There were no money prizes, but in lieu of them first, second, and third-class certificates of excellence were awarded. The President paid for the use of the rooms; Mr. Eastwood, one of the Committee, lent boards for tables, &c.; Mr. J. K. Swallow lent cloth for covering the same; and after the expenses, which cannot amount to much, are paid, the proceeds will be handed over to the Chesterfield and North Derbyshire hospital.

The plants, which included large-flowering varieties, Japanese, and Pompons, were not quite so good as we like to see. Although well bloomed, the majority of them were too high on long naked stems. One collection, however, exhibitors in future might advantageously imitate. This was six large-flowered plants staged by Mr. R. W. Proctor, and deservedly placed first in a strong class—the plants from 3 to 4 feet high, with beautiful fresh green foliage down to the rim of the pots, and every flower almost fit for a stand in the cut bloom class.

Cut blooms were the chief feature of the Exhibition. Mr. Tree, gardener to J. R. Swallow, Esq., was deservedly first for twenty-four large-flowering varieties, as was Mr. J. H. Clements. The Judges considered them equal, but all the local florists considered Mr. Tree the winner, as did most of the leading gardeners. The blooms shown by Mr. Tree were neat, clean, fresh, and well put up, and one old florist remarked that they might have all come out of one mould, so neatly were they incurved. Among the best flowers of Mr. Tree's were White Beverley, Beauty, Mrs. Dixon, Jardin des Plantes, Yellow Beverley, George Glenly, Mrs. G. Rundle, Empress of India, Lady Slade, Golden Empress of India, and Golden Queen of England. The best blooms in Mr. Clements' stand were Virgin Queen, splendid, and Prince Alfred, good; several of the others bad centres. This exhibitor and several others made a great mistake in setting their blooms down too low. For eighteen blooms, large-flowered varieties, Mr. R. W. Proctor was an easy first, his best flowers being Golden Empress of India, Red Dragon, Empress of India, George Glenly, Lady Slade, Lord Derby, and Prince Alfred. Second, Mr. J. Marsden, made the same mistake mentioned above, and some blooms looked dull. Twelve large-flowering varieties, Messrs. Hall and Auckland had some very neat blooms. We also noticed an excellent stand of Japanese and incurved exhibited not for competition by T. P. Wood, Esq., and a stand from Mr. Gosling quite equal to anything in the classes for cut blooms.

In the class for six Primulas the competition was very keen, Mr. R. W. Proctor ultimately winning, being very closely pressed by Mr. Frith, gardener to J. P. Jackson, Esq., J. P. Stubbin Edge; third prize going to Mr. Reynolds, gardener to W. G. Turbitt, Esq., Ogston Hall. In the class for three Primulas Mr. Parker, gardener to Mr. C. Markham, Tapton House, took the lead.

There was a grand display of Grapes and stove plants, kindly lent by the following gentlemen:—His Grace the Duke of Devonshire, Messrs. A. Barnes, M.P., Ashgate; H. A. Fowler, Whittington; J. B. Barrow, Ringwood Hall; W. B. Smith Milnes, Dunston Hall; F. Swanwick, Whittington; J. Britt, Chesterfield; Fletcher & Son, Chesterfield; R. W. Proctor, Chesterfield, who also lent a good collection of evergreens for the staircase. Mr. C. Shentall, fruiterer, had a very good table of fruit. Mr. Ewing, Sheffield Botanic Gardens, and Mr. Stephens, gardener to Sir John Brown, Sheffield, were the Judges.

THE COMET.

A WRITER in the *Times* some years ago (the *Times* cruelly printed the letter) stated that the name was derived from the word "comma," "because a comma is a dot and a tail." I cannot hope to make any equally erudite addition to useful knowledge, but yet I desire to call attention to what is being said of the late comet, which it seems before long may present some phenomena which will have very practical interest for a horticultural journal. It is stated, on apparently good authority, that the brilliant visitor alluded to was none other than the comet of 1688, which came back in 1843. This, if

true, is a very startling and perhaps formidable statement. That comet's period of revolution was thus given as of 175 years, instead of which we had it back in 1880, its period having been diminished to thirty-seven years. This is attributed to the sun's attraction (through a too near approach) having availed to suck it in towards it. And now the 1880 comet is back in two years instead of thirty-seven! At this rate, we are told, a very few months more must see it with a spiral motion dashing into the sun!

Some little time ago the general idea was that a comet falling into the sun—through the mass of matter cast in, besides the heat generated by impact—would cause an outburst of igneous force possibly sufficient to destroy all life on the earth's surface, if not to bring about the general conflagration. Of late Mr. Proctor and others console us by the idea that a comet had so very little solid substance that the effect on the solar central furnace is hardly likely to be great. We will hope that is so. But if the next year really is to bring such phenomena, and even a slight increase of heat be produced, we may have reason to be deeply thankful for the 6 or 7 inches of rain in October, which were registered all over the country.

A pleasing and scrupulously veracious American writer has described a spell of heat in which ducks were roasted and fell fit for the table in flying from pond to pond. Perhaps we need hardly anticipate this. Still, various questions may arise as to show fixtures in prospect of such a decidedly "early season," and it will not be amiss if the subject be ventilated beforehand.—A. C.



HARDY FRUIT GARDEN.

THE unusually wet weather this autumn has not been favourable to the ripening of the wood of fruit trees, but as the leaves have now nearly all fallen, planting should be proceeded with as the weather permits. It is a mistake to defer operations of this kind any longer than can possibly be avoided, as, although the trees are apparently dormant through the winter, there is a certain activity going on which causes the wounds to heal or callus, even if fresh fibres are not actually formed. This gives autumn-planted trees a considerable advantage over those planted later, the latter not having time to form fibres before the rapidly swelling buds are making demands insufficiently supplied, and the consequence is they will break weakly. Although it is important that planting be done early, it is undesirable to carry on transplantation whilst the ground is wet and unfavourable for working, or when frost prevails, as during frost much injury is done to the roots by the vessels being ruptured through an undue expansion of the moisture they contain. To avoid the roots becoming frozen after planting, a good mulching of partially decayed littery manure will serve the double purpose of keeping out the frost and assisting to keep the heat in, also maintaining the soil about the roots more uniformly moist.

In planting the choicer description of stone fruits, such as Peaches, Nectarines, although it may not be necessary to entirely form new borders, it is always advisable that old borders should be deeply stirred; but if trenching be resorted to, the subsoil must not be brought to the surface. Stirring the hard under stratum or subsoil will admit of percolation of water through the soil readily and the passage of air, and with drains to carry off superfluous water there will be no fear of the trees thriving satisfactorily. A few barrowfuls of fresh turfy loam to plant the trees in will afford a good rooting medium for them, and give them a better start than compost rich in decaying material. Calcareous matter is absolutely essential to the cultivation of stone fruits, and soils deficient in this should have some old mortar rubbish or chalk mixed with it.

Pears, Apples, and especially bush fruits, are greatly assisted in their growth by being planted in richer material; but even in their case it is necessary not to afford manure in such proportion as will induce a gross sappy growth, but what manure is employed should be thoroughly decomposed, well mixed with the soil, and not brought into direct contact with the roots. In planting standard trees, where time will not permit trenching to be done for these at once, it will be

well to get the trees in at once at the proper distances by digging or trenching large holes, and leaving the trenching of the space between to be carried out at some future time. The disturbance of the soil about them will be a great gain by the decomposition of the freshly turned ground; and whatever is needed to improve its texture can be readily applied, whether it be clay to render sandy shallow soil more tenacious and moisture-holding, or road scrapings, old mortar rubbish or ashes, to render heavy and wet soils more open.

Although Gooseberries, Currants, and Raspberries are allowed to stand many years on the same ground, even after they have ceased to afford full crops of large fruits, it is not a good practice, as fresh plantations are always more profitable, and a thorough system of rotation of crops should be carried out in the fruit department as in other departments of the garden. Where plantations of the above are giving indications of being worn out by the decay of the bushes wholly or in part, or from affording indifferent crops, fresh plantations should at once be formed, and when these come into bearing equal to the demand the old may be destroyed.

FRUIT HOUSES.

Pines.—During this and the following month the plants will require considerable time and attention in the several departments. The temperature in the sucker pit should be 55°, in the successional pit 60°, and in the fruiting house 70° at night, which under very adverse circumstances may be allowed to fall a few degrees. In the fruiting house the temperature must be raised 5° to 10° higher in the day, being guided by external influences; but in the other compartments a similar rise will not be necessary, except in the case of successional which are expected to show fruit, when they should have the temperature raised as indicated for fruiting plants. Great care will be needed in watering, particularly in the case of plants plunged in beds where there is but slight bottom heat, as under such conditions plants in small or moderate-sized pots will not require much water, and should only be given when absolutely necessary, and then in a tepid state.

FLOWER GARDEN.

Contemplated alterations in lawns and pleasure grounds should be carried out as long as the weather continues mild, completing those sufficiently advanced by laying the turf; but if the weather be frosty the groundwork should be proceeded with, deferring the turfing until mild weather. If there is to be any re-arrangement—replanting trees and shrubs—it is desirable to commence in a systematic manner the groundwork being completed before any planting takes place. The greatest mistake in planting is striving too much to produce an effect at once, as in a very few years the shrubs become so crowded that a thinning of one-half has to be effected, which may spoil the whole of the arrangements. The position of each specimen, or those that are to remain as such, should be arranged, and the whole of these planted first, the spaces being then filled in any manner calculated to produce a pleasing variety for present effect; only it is undesirable to employ tall-growing trees, which are much better planted in the arboretum or for grouping in park scenery. Still, many of the Coniferæ and others that develop into large trees are very beautiful in a young state, and they are used in ornamental borders. In planting shrubberies it is well to make a departure from the prevailing fashion of late years of giving preference to evergreens to the almost total exclusion of flowering deciduous shrubs, some of which are very beautiful.

Except the almost constant work of sweeping and rolling little remains to be done in this department at present. Any gaps in Box edgings should now be made good. Where the soil is suitable for the growth of Box it is unrivalled as an edging plant, but in sandy soils or those lacking calcareous matter it often turns brown, which greatly detracts from its appearance. Where this is the case the edgings will be greatly improved in colour by working in a good quantity of chalk when relaying. Christmas Roses are much appreciated and in great request for cutting. Handlights placed over them will greatly assist the flowers and improve their colour. There is always great risk in digging herbaceous borders, especially at this season, unless the positions of bulbs and plants are indicated by stout hard wooden pegs; but, except in the case of such things as are

well known, it adds much to the interest of plants to have them properly named. Bad weather will afford an opportunity of providing pegs or labels for such plants as require them renewed. The borders should now be mulched with well-decayed manure, leaf soil, or the reduced refuse from the rubbish heap, which will not only enrich the soil but form a suitable protection against the severity of the weather. Keep a sharp look-out against the depredations of mice amongst bulbs.

Ere winter sets in in earnest plants of doubtful hardiness should receive the needful protection. Some dry leaves placed about their crowns and some fern over, with a branch or two of Laurel or Spruce to prevent their blowing about, form a good protection for Bambusas, New Zealand Flax, *Chamærops Fortunei*, Pampas Grass, and many others; and those of doubtful hardiness against walls should have the roots similarly protected, affording in addition to this for *Magnolias* or *Ceanothuses* a double covering of mats tacked in front of the trees in severe weather. Roses of the tender kinds against walls may be treated similarly. Beds of Tea Roses must either now be lifted and laid in a pit to which protection can be given in severe weather, and from which they can be transferred in spring to the quarters for blooming, or they may be left in the beds protected with a good thickness of leaves kept from blowing about by some litter or fern, and in severe weather some dry hay or fern woven in about the heads will materially assist them to withstand sharp frosts. Hybrid Perpetuals should be well mulched over the roots with littery manure, and with this they are comparatively safe, as with the roots protected they will bear more cold than those not so protected, and in the case of dwarfs they will start from the base if the tops are cut off to the line of mulching.

THE BEE-KEEPER.

THE ART OF BEE-KEEPING.—No. 4.

(Continued from page 511.)

THE QUEEN BEE.

WHILE a worker bee is developed from the egg in twenty-one days, a queen takes only sixteen days—viz., three days in the egg, five as a larva, and eight in the sealed state. What makes this difference remarkable is the fact that the eggs from which both are developed are originally alike—i.e., the same egg may produce either a worker or a queen, according to the way the bees treat the larva that hatches from it. No one has yet solved the mystery in which this transformation is enveloped. All we do know is, that the larva intended for a queen is furnished with an excessive quantity of rich food called royal jelly, and provided with a much larger cell than that of a worker, and which is placed in a perpendicular instead of a horizontal position. It is a knowledge of this remarkable power possessed by the bees that enables the bee-keeper to have queens raised at will. Usually queens are raised only when swarming is intended, or the old queen becomes nearly exhausted, or meets with sudden death. But if queens are wanted at any time the bee-keeper may almost invariably cause a number of them to be raised by simply removing the old queen. In this case the bees generally select young larvæ to be transformed into queens, and thus the latter may be ready to hatch in twelve, or even ten, days from the time of removal of the old queen. As, under such circumstances, the first hatched princess usually destroys all her rivals before they issue from their cells, the bee-keeper who desires to save more than one must be careful either to remove, or cage in wirecloth, such cells as he wishes to make use of, and that about the ninth or tenth day. Such sealed cells may be given to other stocks having no queens, as when artificial swarms are made, and thus one stock may do all the queen-rearing needed in even a rather large apiary.

The knowledge of these facts renders artificial swarming possible, since the bees left in a stock from which a queen and swarm have been taken will either raise a new queen for themselves, or accept a royal cell reared in another stock. Artificial swarming was practised ages ago by the natives of the eastern Mediterranean shores, though the knowledge of how both stocks came to have queens was not possessed by them. In our own country it does not appear to have been practised before the end of last century, but followed the discoveries of Shirach and Huber already referred to. Bonner indeed tells us he practised it even before he heard of Shirach's discovery. But his practice was in some respects faulty; and this is not

surprising, since neither he nor Huber knew anything certain about the fecundation of queens. This was left for Dr. Dzierzon and Baron Berlepsch of Germany to unfold about thirty years ago. Since then queen-rearing has been carried on with the certainty of a science, and has indeed attained considerable proportions as a special commercial pursuit both in Europe and America.

Let us now briefly notice the peculiarities of the queen (fig. 89) thus strangely produced. In appearance she differs greatly from her sisters the workers (fig. 90). She is about a third longer in body, and is altogether a more strongly fashioned creature, with the exception of her jaws and trunk, which are not so well developed. Her colour is a shade lighter, especially on the legs and under side of the body; and her wings are shorter in proportion to her size, and generally appear closely folded along her back. This latter peculiarity, as also her more slender outline, enables beginners at a glance to distinguish her also from the drones (fig. 91). Not being intended for foraging she is not provided with the spoon-shaped cavities on the hind legs, which the workers possess as pollen baskets, and she differs materially in other points of anatomy, but specially in having her ovaries largely developed. These last exist in the workers, but only in an embryo state.

In instincts she also differs greatly from the workers. She has no building or provident instincts, and when once fertilised never goes abroad unless to accompany a swarm. She devotes herself solely to the work of laying eggs, which she leaves entirely to the care of the other bees; and her temper is so different that no provocation will induce her to use her sting unless against a rival queen. In this case, however, her antipathy manifests itself in



Fig. 89.
Queen.



Fig. 90.
Worker.



Fig. 91.
Drone.

determined attempts to kill any rival, and extends even to the unhatched tenants of the royal cells. Only in the somewhat rare case of a young queen hatched for the purpose of superseding one that shows failing powers do we ever find two queens living peaceably together in the same hive.

The queen is the centre of attraction in every colony. If suddenly removed or lost the bees manifest great uneasiness. They rush about the hive, outside and in, and at intervals unite in giving expression to their grief in a doleful hum. If brood or eggs be left they will in the course of a few hours settle down as if resigned and commence the work of providing a successor, but if this be impossible they will be found in an excited state for weeks after. Experts can generally tell by the sound produced on slightly disturbing a hive whether it be queenless or not.

The queen is recognised by the other bees mainly by her scent, and outside the hive they may be seen to follow her trail as hunting dogs track game. A strange queen is recognised as such at once, and only accepted by bees that have fully realised the loss of their own queen. It is thus necessary to use precautions in introducing a strange queen to a colony, the most approved method being to confine the new queen in a wire cage until the bees become reconciled to her presence, which is sometimes at once, but generally within twelve hours or so. Cases, however, occur in which she will be attacked whenever liberated, even after being caged for a whole week. The behaviour of the bees at the moment of liberation will generally satisfy an experienced bee-keeper as to their intentions, hostile or otherwise; but we recommend that in all doubtful cases an inspection of the hive be made an hour or two afterwards. If all is quiet no further anxiety need be felt, but if the peculiar angry hum of discontented bees be heard an inspection of the combs will often reveal the poor queen encased in a mass of excited bees, in which case she must be freed by means of smoke, or by tossing the knot of bees into a vessel of water and again placed in the cage.

Queens mate on the wing, generally when about five days old, though sometimes sooner; and their fecundation is sometimes delayed by adverse weather and other causes until they are from two to four weeks old. They seem then to become incapable of fertilisation, and in many cases settle down to egg-laying as if all were right. In such cases, however, only drones will be produced from the eggs, in accordance with what is known as *parthenogenesis*

—that is, of virgin birth. Such cases are not at all rare, and must be promptly dealt with by destroying the unfertile queen and replacing her by a fertile one, or by joining the stock to another in healthy condition.

The best of queens may, after laying many hundreds of thousands of worker eggs, suddenly begin to lay drone eggs *in worker cells*, a sure sign that they are becoming worn out. Such also should be replaced. Under purely natural conditions queens will live and do well for four years, or even more; but under the stimulating influences of modern management fully carried out they may be induced to lay as many eggs in two years, and soon after begin to fail. Experienced bee-keepers therefore endeavour to avoid all risks by renewing queens every two years, and all should keep a register showing the age of every queen in an apiary.

While on this point it may be well to remark that queenless stocks will occasionally develop one or more *laying workers* or pseudo queens. These cannot be distinguished from the other workers unless caught in the act of laying, and are not, therefore, easily got rid of. It is unsafe to attempt the introduction of a proper queen where a fertile worker is present, as the latter generally succeeds in retaining her place as mistress. For our own part we do not care to fuss with such colonies, as they are usually weak and composed of aged bees of little value. If still numerous we unite them to another stock, caging the queen as a precaution until the fertile worker may be supposed to have been despatched by the bees of the healthy stock.

When once fecundated a queen remains fertile as long as she is capable of laying worker eggs. This fact accounts for the purity of all the bees ever produced by an imported queen of any foreign race—that is, if a queen begins to produce only yellow bees she will do so as long as she lives. If mated with a drone of another race her worker progeny will be of a mixed character, though her drone offspring will, according to the Dzierzon theory, follow the mother. Her fecundity is amazing, it being well known that she can continue to lay for many weeks at a time from two thousand to three thousand eggs a day. Much appears to depend upon the way she is treated by the workers, it being quite easy, by stimulating the latter, to cause an increase in the daily deposit of eggs by the queen; but at no period of the year can she be said to lose the power of laying, as brood may be found in some hives every month of the year.

The peculiar character acquired by certain stocks of bees is largely by inheritance, and may be altered by changing the queen. Thus peculiarly energetic or good-tempered stocks may become indifferent workers or acquire a vicious temper; thus also by careful selection and breeding of queens much may be done towards improving the less energetic races. The introduction of new blood by means of queens imported from Italy and the east has latterly become a favourite practice with many bee-keepers, but the results hitherto attained do not warrant us in advising beginners to incur any expense in this direction. We consider our native bees to be at least equal to those of any foreign race, and advise all to learn to develop to the utmost the capabilities of these before attempting experiments with the pretty foreigners.—W. RAITT, *Blairgowrie*.

(To be continued.)

TRADE CATALOGUE RECEIVED.

Henry Boller, Woodfield Road, Harrow Road, London, W.—*Catalogue of Succulent Plants (Illustrated)*.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Glass for Vinery (E).—If you reflect for a moment you will perceive how unfair it would be for us to recommend any particular dealer for supplying any article connected with the garden, and if you had read the Journal atten-

tively you would have observed that we have repeatedly said we do not nor cannot recommend dealers through our pages. 21 oz. thirds will be suitable, or 16 oz. seconds will do very well if the sashbars are not more than 10 inches apart. You can obtain the other particulars you require by consulting our advertising columns and writing for price lists.

Destroying American Blight (*B. J. Elliott*).—You say you have heard of tar being used for this purpose, but you cannot remember by whom nor in what manner it was applied. Mr. Speed, the able gardener to the Duke of Devonshire at Chatsworth, recommends the following as an infallible remedy. Take a pint of gas tar and mix with it a pint of dry powdered clay. Form the whole into a paste by adding by degrees a gallon of warm soft water. If this is applied with a brush during winter it effectually destroys woolly aphids, and indeed all insects, while it does not injure the trees.

Wiring a Vinery (*A Constant Reader*).—A distance of 18 inches from the glass is suitable for stretching the wires, these to be 10 inches apart, and stretched from end to end of the house across the lights, and not from the bottom to the top of the house in the direction of the sashbars. Mr. Luckhurst has found that suspending the rods a foot or so from the wires is a good plan, and we have no doubt whatever that it is, as there is then less danger of the laterals being broken by bending them down to the wires. In the large vinery at Longleat the trellis is 3 or 4 feet from the glass, but 18 inches suffices in ordinary structures, and you may rely on this distance as being safe.

Tomatoes in Vineries (*F. W.*).—Some of the finest crops we have ever seen were grown against the back walls of vineries before the Vines were established, and we have seen very useful crops in these positions even when the Vines were fully grown, and the Tomatoes had only glimpses of sun, as the foliage of the Vines almost entirely covered the roof of the house. Tomatoes in a house with Vines do no harm whatever unless they are planted in the Vine border or the growths crowded amongst the Vine leaves, and no sensible man would do this.

Storing and Ripening Medlars (*A Subscriber*).—Medlars may be treated in every respect similar to dessert Apples. If stored eyes downward on shelves in a dry room, or the fruit room, they will ripen naturally; but ripening may be hastened by placing fruit in a box or basket in a warm room. With us the Dutch Medlar ripened some time ago, and this is the largest variety. The Nottingham is later, of better quality, and is now eatable. The supply of either sort can be prolonged by gathering at intervals, and by artificially ripening of a part of the crop when this happens to be gathered all at one time.

Prices of Grapes (*J. M.*).—As you are well aware, the price of Grapes depends not on the quality of the fruit when cut from the Vines so much as on its condition when it reaches the market. We are well aware of the accuracy of your statement, and we are also aware from other letters on the same subject which reach us from time to time complaining of the low prices that fruit has realised, that it would do more harm than good to publish what you have written with the best intentions. We have to recognise the fact that hundreds of cultivators of Grapes cannot produce such high-class fruit and place it in the market in such good condition as you can and the celebrated grower to whom you refer. Grapes of very superior quality occasionally realise considerably higher prices than those published, but they in no sense represent the general tone of the market.

Forcing Rhubarb (*R. Watson*).—You have adopted the method which is generally pursued in forcing Rhubarb, and if you maintain a temperature of about 60° in the pots, crowns will start in about a fortnight, and stalks be ready for pulling in a month. Some varieties of Rhubarb do not force so well as others, and the crowns do not start so quickly into growth in November as during the early months of the year. Many persons obtain early Rhubarb by digging up the roots and packing them in Mushroom houses, or placing them in pots or tubs under the stage of a plant stove or in any warm place such as a cellar or stable.

Roses for Exhibition (*H. S. P.*).—The following are twenty of the best Hybrid Perpetuals:—Marie Baumann, A. K. Williams, Alfred Colomb, La France, Baronne de Rothschild, Charles Lefebvre, Marquise de Castellane, Duke of Edinburgh, Etienne Levet, Marie Rady, Capitaine Christy, Louis Van Houtte, Dr. Andry, Ferdinand de Lesseps, François Michelon, Madame Victor Verdier, Marie Finger, Comtesse d'Oxford, Mons. E. Y. Teas, and Madame G. Luizet. Six good Tea Roses are Catherine Mermet, Maréchal Niel, Souvenir d'un Ami, Marie Van Houtte, Souvenir d'Elise, and Devoniensis.

Eupatorium odoratum (*W. J. M.*).—This very useful plant is easily grown, and its abundant supplies of white fragrant flowers are most valuable at this time of year. To obtain large specimens the plants should be placed out in a border during the summer, being lifted and potted in autumn; and after keeping them close for a day or two until they have recovered they can be transferred to the greenhouse or conservatory, or any similar structure. Turfy loam, a little leaf soil, and well-decomposed manure form a suitable compost, and if the plants are retained in pots occasional supplies of weak liquid manure will be beneficial. This plant is readily increased by cuttings of the young growths treated like ordinary softwooded plants.

Pit for Growing Gardenias (*F. H. F.*).—A half-span is the most suitable. The width should not be less than 10 feet inside, which will allow of a border at the back 2 feet 7½ inches wide, divided from the pathway by a 4½-inch brick wall, then the pathway 2 feet 6 inches wide; and with a 4½-inch wall to form the side of the front border, the latter will be 4 feet 1½ inch wide. The walls forming the sides of the pathway should be 2 feet 6 inches high, the top course of bricks laid in cement, or have a stone or coping. If bottom heat be sought it should be furnished by hot-water pipes. Two 3-inch pipes will be necessary for the front bed, disposed a foot from the walls all around, and covered with thin slabs of stone or slate, so as to form a chamber a foot deep, which will leave 18 inches minus the thickness of the stone or slate covering. One 3-inch pipe will be sufficient for the back border, placing it up the centre. The covering of the chamber should have the joints left open, and have 3 inches of rubble on the chamber covers; and if the plants are to be planted out have the rough of the compost placed over the rubble, and then fill in with soil for growing the plants, than which nothing answers better than turfy loam, with a tenth of sand incorporated and a twentieth of charcoal broken up small. If the plants are to be grown in pots cocoa-nut fibre refuse may be employed in place of the compost as a plunging material for the pots; and if the borders are to be used as spaces for fermenting materials, to give bottom heat in place of the hot-water pipes, the depth should be increased a foot by excavating the bottom. The back wall should be 6 feet 6 inches high, the front 5 feet, and the height of the house from the centre of the path 8 feet, to the under side of the ridge. Ventilation need only be provided by the back lights, which should open the entire length of the house. No side lights are necessary, and it would be advisable for appearance to sink the house 2 feet in the ground, so as to have less wall

outside. For top heat three rows of 4-inch pipes will be necessary, taking one along the front of the house, and the other on the path walls, or they may be placed at the sides of the pathway.

Carnations in a Cold Frame (*Idem*).—Souvenir de la Malmaison and other tree Carnations may be wintered safely in a cold frame, the pots being plunged in ashes, and protection given over the lights at night in frosty weather. The plants, however, will not flower until June, at least onrs do not, and we have some in cold pits to succeed those grown in heat. The plants probably become drawn and weak in the greenhouse from their not having a light position and sufficient ventilation. The soil may also be too light, Carnations liking a rather strong gritty loam enriched moderately with old well-decayed manure, and should be potted rather firmly to induce a rather short-jointed growth and free disposition to flower. To have Carnations flowering in winter they require a temperature of 50° by artificial means, and all the light possible, with air upon all favourable occasions. It is little use attempting to grow Carnations in a house shaded by climbers or other plants and inefficiently ventilated.

Grape Failures (*M. D.*).—When you admit growing too heavy crops you admit everything; still you say, "Other cultivators have black Hamburgs in July and August, and why cannot I, in a house with plenty of pipes for heating?" You can have them if you regulate the crop in accordance with the strength of the Vines, and you cannot have them if you do not do this. The earlier Grapes are ripened the lighter the crops must be, because there is not nearly the root power for supporting the crop in July that there is, say, a month afterwards, and that extra month of root-extension in good soil makes all the difference between brown and black Grapes, the system of management in other respects being good. Soot is an excellent manure for Vines. But this is not the sole cause of your Vines showing so many bunches; the chief cause is probably the thorough ripening of the wood consequent on its being made early and having the best and longest portion of the summer in which to mature; nor is the number of bunches that show any criterion that the Vines are not overcropped. Their profusion indicates fruitfulness; but if you leave your usual crop on one Vine and have a reduced crop on another of equal strength you will find the Grapes on the latter will finish better, but the following spring both Vines will show the usual number of bunches if the wood of both is alike strong and matured. You are adopting the right course in providing fresh and good soil for the roots, as the better the Vines are supported the heavier crops they will perfect; and unless you either increase the root-action and food-supply, or reduce the weight of Grapes, you will not have well-finished produce even if the management as regards temperature and ventilation be the best in the world.

Pereskia aculeata (*Sigma*).—The plant of which you send a fragment is *Pereskia aculeata*, a member of the natural order Cactaceæ, and a native of the West Indies. It is chiefly grown as a stock for Epiphyllums, which are grafted on clean stems of the *Pereskia*, varying in height according to the uses for which the plants are intended. For plants in pots a height of 6 inches to 1½ foot is sufficient; but we have seen the stems taken to a height of 8 feet or more before grafting the Epiphyllums upon them. In this case the stems have been trained to the wall of a house, and the heads arched over a walk, the suspended Epiphyllums having thus a fine effect when in flower. The *Pereskia* itself is of little value except as a curiosity, and is easily grown, though seldom seen in flower. A compost of loam, sand, and small pieces of broken bricks, with a little well-decomposed manure, suits it well, and the temperature of a stove is the best fitted for it. Water must be carefully supplied during winter—indeed, very little will then be required; but whilst growing a larger quantity is needed. When your plant is large enough we should advise you to graft an Epiphyllum upon it, which you may easily do by cutting the stock to the required length, and then cut the upper part of the stem to a wedge-like point, taking a piece out of the base of the scion so that it will fit evenly saddle fashion upon the stock. This may be then secured with a piece of matting, and a union will soon be effected.

Culture of Fittonias (*Idem*).—When in good condition these are very attractive plants, and the silver-veined leaves of *F. argyroneura* are much valued by some persons for table decoration, either at the base of vases or in dishes containing fruits. They may be grown in baskets or pans, the latter being preferable, as they can then be placed in the stove or intermediate house on the stages under the shade of the taller-growing plants, and this appears to suit the *Fittonias* admirably. They also succeed well in small borders beneath the stages when not too near to the hot-water pipes, and while imparting a neat and pleasing appearance to what is often an unsightly part of the house they also prove useful in affording a bountiful supply of sprays or leaves for decorative purposes. Peat and light turfy loam, with a little sand and leaf soil, constitute a suitable compost, supplying good drainage when the plants are grown in pans. *Fittonias* can be readily increased by cuttings inserted in sandy soil in slight bottom heat. The "Greenhouse for the Many," price 9d., post free 10d., or Johnson's "British Ferns," price 3s. 6d., post free 3s. 9d., both published at this office, or Mr. B. S. Williams' "Select Ferns and Lycopods," price 5s., post free 5s. 5d., would suit you.

Tomatoes in Frames (*Nil Desperandum*).—You will experience no great difficulty in securing an early and continuous supply of Tomatoes in your three-light frame. Supposing you have another frame placed on a hotbed and utilised for propagating and other purposes in the spring, this would be the place to raise the plants. Earley's Defiance will be found the most profitable variety for your purpose, and seed of this or Conqueror—another large free-fruited variety, should be sown early in March thinly in an 8-inch pot or pan. Keep the seedlings near the glass, and when in rough leaf pot off singly into 5-inch pots, or in pairs in 6-inch pots, sinking them carefully up to the seed leaves in the rather light and previously warmed soil. Shade from bright sun, apply water carefully, and keep the plants near the glass. When well established they will require all the light and as much air as can safely be afforded. In this manner sturdy plants will be obtained ready for planting out in the frame early in May. Not much bottom heat is required, but a slight hotbed should be formed in order to give them a good start. We should not fruit them in large pots, preferring to plant out. A few days prior to planting cover the whole of the bed with about 1 foot of soil, consisting, if available, of two parts of turfy loam to one of half-decayed stable manure. Dispose about five plants in each light, these being planted in a sloping direction and pegged down, so as to be equally distributed about the bed. Continue to train till the frame is thinly filled, afterwards the points may be allowed to turn up, and these and a few laterals will furnish abundance of clusters of fruit, which will ripen better if staked up. Thin out each cluster to about six fruits. Closely rub or pinch out all superfluous growths, give abundance of water, varying with liquid manure when in full growth, and plenty of air on all favourable occasions; but do not syringe the plants nor throw off the lights during showery weather. The disease will not affect them if the foliage is kept dry, and by attending to the above directions there will be no necessity to replant during the season. You ought to commence gathering fruit early in July. Mr. Iggulden's treatise on Tomatoes, which you can have

from this office post free for 1s. 1d., contains a chapter on frame culture, besides other useful information on the subject. In reference to your other question, about 25 tons of rich manure would be a good dressing, giving, if needed, a sprinkling of nitrate of soda and superphosphate of lime in the spring or early summer when the crops are in a growing state.

Names of Plants (W. J. M.).—*Eupatorium odoratum* is the plant of which you sent a spray without leaves (see above), the other we cannot recognise from the specimen sent, all the flowers having closed. (*Sigma*).—*Pereskia aculeata*, see reply above. (*C. D., Wales*).—Without more definite particulars we cannot tell to what *Chrysanthemum* you refer; probably, however, it is *C. carinatum*. Seed flowers of the *Aquilegia*, the leaf alone is not sufficient.

COVENT GARDEN MARKET.—DECEMBER 6TH.

OUR Apple market is now very quiet, being principally supplied from Canada, samples reaching us in good order, and generally fine. Hothouse Grapes are in good supply, and coming in better condition. Kent Cobs firm.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 0 to 7 0	Lemons.....	case	20 0 to 30 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	2 0 3 0
Cherries.....	½ sieve	0 0 0 0	Nectarines..	dozen	0 0 0 0
Chestnuts.....	bushel	10 0 12 0	Oranges.....	100	6 0 10 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
„ Red.....	½ sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 2 0
Figs.....	dozen	0 6 1 0	„ dessert.....	dozen	1 0 2 0
Filberts.....	lb.	0 6 0 0	Pine Apples, English	lb.	2 0 3 0
Cobs.....	100 lb.	45 0 50 0	Raspberries.....	lb.	0 0 0 0
Gooseberries....	½ sieve	0 0 0 0	Strawberries....	lb.	0 0 0 0
Grapes.....	lb.	1 0 5 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Lettuces.....	score	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mushrooms.....	punnet	1 0 1 6
Beans, Kidney....	100	1 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beet, Red.....	dozen	1 0 2 0	Onions.....	bushel	2 3 2 6
Broccoli.....	bundle	0 2 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	1 6 2 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 0 0 0
Capicums.....	100	1 6 2 0	Potatoes.....	ewt.	6 0 7 0
Carrots.....	bunch	0 4 0 0	„ Kidney.....	ewt.	6 0 8 0
Cauliflowers.....	dozen	2 0 3 0	Radishes.....	doz. bunches	1 0 0 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 0
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 6 1 0	Scorzonera.....	bundle	1 6 0 8
Endive.....	dozen	1 0 2 0	Seakale.....	basket	2 6 3 0
Fennel.....	bunch	0 3 0 0	Shallots.....	lb.	0 3 0 0
Garlic.....	lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Tomatoes.....	lb.	0 8 1 0
Leeks.....	bunch	0 3 0 4	Turnips.....	bunch	0 2 0 0



POULTRY AND PIGEON CHRONICLE.

THE LEICESTER BREED OF SHEEP.

THE rise and progress of this breed of sheep is one of the most important histories in connection with our long-woolled sheep stock. The old Leicester breed was a large coarse sheep, possessing an abundant fleece with only a fair disposition to fatten. The Dishley or new Leicester, which for many years has quite supplanted and superseded the parent stock so as to be denominated the Leicester, is probably, with reference to its origin, the most artificial of any, having been moulded, as it were, by the master hand of Bakewell, obedient to certain principles which he believed to be correct, and which the experience of subsequent years has fully justified. Mr. Bakewell commenced the improvement of the Leicesters probably about 1750. In the year 1760, when the first letting of his rams was held, the first animal let for the season only made 16s., and it was not until about twenty years afterwards that Mr. Bakewell obtained a remunerating price for his sheep. It was then stated to have been only ten guineas; it, however, afterwards rapidly increased, so that in 1786 he realised three hundred guineas for the use of one ram let for the season. But three years afterwards, in 1789, he obtained for the letting of his rams the large sum of 6200 guineas, but the number let is not recorded. Still he must have been handsomely repaid and rewarded for his long-continued and untiring exertions under difficulties and opposition beneath which most men would have abandoned their pursuit as hopeless.

There were, as we may suppose, strong traits in the character

of Mr. Bakewell which, we are told, were quaint, but decided and peculiar. It is related of him that when he received a summons to show one of his horses in London to George III., His Majesty looked much more at the man than the horse. His management of vicious animals is said to have been remarkably effective. A horse which was sent to him as irreclaimable soon followed him like a dog up and down the Loughborough corn market, and a bull, which arrived at Dishley under the escort of six cows and a man on horseback with a nine-foot spike, was reduced to submission by a system of starvation, sleeplessness, and scratching at the tail head, which was supposed to go on for three or four consecutive days and nights. The memoirs of the old Leicestershire worthy have never been published, but his sayings, such as "Money wears but three lives," "Consume half the corn you grow with beasts, or lay out half its price in cake," "Rise with the lark and to bed with the lamb," are still preserved with his essays in a MS. book at Dishley. The essays are short and take a wide range, for which we cannot find space, but we need scarcely say were highly suggestive and characteristic of the man.

The sources from whence Mr. Bakewell derived his breed cannot be accurately ascertained. The old Lincoln, the Teeswater, and the Warwickshire have each been named, and it is said that other sorts of long-woolled stock have also been employed. There is no doubt that Bakewell was not particular as to the source so that he could obtain the desired qualifications. He was very uncommunicative on this point, and the knowledge of the real origin was lost with him. It is probable, however, that the foundation of his breed was the best existing specimens of the old Leicester breed, for we are informed that Mr. Bakewell found by selecting smaller and more compact animals that he produced an earlier maturity and a greater disposition to fatten, which more than compensated in his breeding plans and objects for the loss of weight and diminished size. Thus by systematically and unremittingly carrying out his principles—viz., to attain as near as possible perfection of form, style, and type, he at length produced an animal which far surpassed all others of the period in the before-mentioned qualities, comprising, as it has been well observed by Mr. Culley, one of his admirers, in the same apparent dimensions greater weight than any other sheep, with an earlier maturity and a greater tendency to fatten, a diminution in the proportion of offal, and the return of the most money for the quantity of food consumed.

We can easily imagine even in those days that this system could not be carried out without rapidly extending the improved breed, and of course improving the flocks of other sheep-breeders to a vast extent, and inducing other parties to seek a participation in the advantages of the system. Accordingly its advocates and promoters formed themselves into a club, denominated the Dishley Society, with the object of extending their breed, preserving it pure, and benefiting and protecting themselves. This Society was established by Mr. Bakewell, and a code of laws was adopted extending to thirteen clauses, for which we cannot find space in our notice, but must refer the home farmer to a work in which they appear by Mr. W. C. Spooner, M.R.V.C., "On the Structure, Economy, and Diseases of Sheep." Every farmer should possess this work, which is sold at a moderate price. We need scarcely say that these rules were laid down for the purpose of jealously guarding and preserving the purity of the breed, and the benefit of the members, and it was undoubtedly by strict attention to these rules and the principles adopted by Mr. Bakewell that the Leicester sheep continued to improve and to be introduced into one county after another, especially in the grazing districts of the midland and north-midland counties. Their merits were sufficiently tested at that time by the fact that they invariably bore away the prizes when competing with other long-woolled sheep at the shows of the Smithfield Club and other societies.

The various points which distinguish the Leicester sheep may be thus correctly described:—The head should be hornless, long, small, tapering towards the muzzle and projecting horizontally forwards; the eyes prominent, but with a quiet expression; the ears thin, rather long, and directed backwards. The neck full and broad at its base where it proceeds from the chest, but gradually tapering towards the head, and being particularly fine at the junction of the head and neck; the neck seeming to project straight from the chest, so that there is, with the slightest possible deviation, one continued horizontal line from the rump to the poll. The breast broad and full; the shoulders also broad and round, and no uneven or angular formation where the shoulders join at either the neck or the back, particularly no rising of the withers, or hollow behind the situation of these bones. The arm fleshy through its whole extent, and even down to the knee; the bones

of the legs small, standing wide apart, no looseness of skin about them, and comparatively bare of wool. The chest and barrel at once deep and round, the ribs forming a considerable arch from the spine, so as in some cases, and especially when the animal is in good condition, to make the apparent width of the chest even greater than the depth; the barrel well ribbed home, no irregularity of line on the back or the belly, but on the sides, the carcase very gradually diminishing in width towards the rump. The quarters long and full, and, as with the forelegs, the muscles extending down to the hock; the thighs also wide and full; the legs of a moderate length; the pelt moderately thin, but soft and elastic, and covered with a good quantity of white wool, not so long as in some breeds, but considerably finer.

These various qualifications as above stated were obtained and preserved by the great and long-continued attention which was paid by Mr. Bakewell, and assisted by the members of the Dishley Society, to the selection of individual animals, and mating the ram with the ewe so as to correct the faults or deficiencies either may possess, and thus, by carefully and progressively getting rid of faults, gradually approaching to perfection, which, though it may be rarely or never reached, should yet be the constant aim of the breeder.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This is very much in arrear, especially in the loamy and strong-land districts, and the seedtime for Wheat has been greatly delayed; nevertheless, all that is possible should be sown with Wheat between the present time and the 1st of February whenever the weather proves open and favourable. This matter should not be delayed for want of manure; for although enough box or yard dung may be available, it would be well to reserve it for early root crops, such as Mangolds, Carrots, and Cabbages, because in those cases, even where the land will bear the casting of dung on to the land for Wheat, the delay attached to it may be fatal to the Wheat-sowing, for it often happens when the seedtime is unusually late that a day lost cannot be regained. The storing of Mangolds has now been nearly completed, and should be finished as soon as possible, or as soon as horses can be spared to cast it to the store heap. In the meantime the Mangolds may be kept in small heaps, covered with greens or refuse and damaged straw. When the Wheat land is all seeded ploughing and fallowing for roots may be continued. It is especially desirable that land intended for Potatoes should now be ploughed, and in those districts where female labour is available women may be employed at all favourable weather in forking out bunches of couch, bents, and Onion grass, either before the land is ploughed or afterwards, in all open weather when the grass, &c., can be seen, especially in the spring before ploughing and planting, which saves delay—a matter of great importance connected with all early spring crops. It often happens where women cannot be obtained for light work that it cannot be done by the men, and therefore more horse labour is required, which causes delay, and frequently the best seedtime is lost in consequence, besides the difference between cost of extra horse labour and light hand labour. At all leisure times the home farmer should remember that cartage of earth and earthy materials may be carted together in readiness, not only for earthing the cattle pens, &c., but also for making composts of earth and manure, such as yard or town dung, to be sooner or later applied to the pasture land.

Hand Labour.—In many districts more work is on hand than labourers can be found to execute. It is also increasingly difficult to get a good day's work done for a good day's pay. It is, therefore, very desirable that the home farmer should have nearly all his work done by task; at least, as much as is possible. This applies with still more force in female labour, for in any light work the women will do as much work as the men and earn as much money. In all piece and task work where the women can really earn good wages in field labour they may be induced to take their part or share in the light easy work on the farm, whereas if they are only employed or offered day work they would remain at home, as they do now in various parts of the kingdom. Upon all farms where much stock is kept either of sheep or fattening cattle there is always an abundance of light work adapted for them to do which really is not done in a satisfactory manner, or not done at all, where men only are available.

Live Stock.—The feeding of the in-lamb ewes is now a very important part of the business of the home farmer, for not only is it necessary to prevent the ewes eating large quantities of Rape and Turnips on the fallow surface, which makes bad lying for them, but it is essential to the health of the ewes and the success of the fall of lambs that they should have a run upon healthy grass, either pasture or old lea; and when the grass becomes bare and short it should be supplemented by Cabbages drawn out on the driest land, which may be appointed for their night lair. Another point is, that after the extremely wet autumn which we have gone through many flocks are breaking down with the foot rot or epidemic lameness, from which sheep have suffered so much in bygone seasons. In order to assist the home farmer in curing any lame sheep suffering from either of the above causes we give the remedy we used for more than forty years with great success. Recipe—Take 3 ozs. of nitre, 3 ozs. of blue vitriol, 3 ozs. of gunpowder. These should be reduced to a very fine powder, and well mixed with

half a pound of hog's lard; it will then keep for use. In the case of young lambs more lard should be used with it. But having the best remedy is not sufficient; it must be properly applied. Where the sheep break down lame continually they should be looked to daily, and those which are lame should have the paste rubbed in between the hoofs the first day it is discovered. If by any chance the disease should extend under the horn of the foot it should be carefully cut away as far as suppuration exists and without making the foot bleed. If it should bleed through accident in cutting it is best to let the bleeding subside before applying the remedy, which has in our case been so successful that we never lost 6d. per head by lameness since we have used this remedy. But many farmers with a large flock will not encounter the cost of continual labour by the shepherd and men under his direction, and in consequence have confessed to us that their losses on some occasions of condition in the animals has amounted to more money than their cake or corn bill. The Dorset and Somerset Down ewes will now begin lambing in a few days, and the course of management as directed lately for the horned ewes and their lambs will apply equally well to the Down ewes and lambs, with this exception—that the lambing fold will require to be placed in a carefully littered yard or fold, and it should be on ground with a slight inclination of the bottom or floor, in order that the water may drain away and give them a dry lair; whereas in the lambing fold for horned ewes we seldom use anything but a fold shifted daily on a piece of dry and sheltered pasture or old lea ground.

FARMING NOTES.

CATTLE.

PREPARATIONS are fast being made for the coming winter, and we are already looking forward to another year, for Michaelmas to farmers is practically the end of the year, the harvest being past, the season of growth almost at an end, and the year and its results lay open before us like a book written large, clear, and unmistakable. No time could therefore be better for a retrospective glance over its pages and to store up its most useful lessons.

Genial spring weather induced an early and abundant growth of grass that proved a great boon after the small hay crop of last year, and with hay at £7 a ton a cold late spring would have been disastrous for dairy farmers and breeders of cattle. So forward, however, was the grass, that by March 15th we were able to throw open the whole of the yards and to turn lean stock as well as cows upon the pastures—no light matter when it is remembered how frequently we are unable to do this till the end of April or beginning of May. It is true enough that much cattle is to be seen out upon pasture throughout winter whenever the weather is open, but it is a sight to be deplored, an outcome of hard times pointing with no uncertain hand to straitened means, and a struggle with dire adversity which can hardly result in good, for such cattle but too often are in a state of semi-starvation. It is far better to confine cattle entirely to the yards from the time that legitimate autumn-grazing is over till a full bite is to be had in spring. Let me explain what is meant by autumn-grazing. By the middle of October the yards are littered and all the cattle are driven in at night, but for weeks afterwards while the weather continues mild and open, and herbage is still plentiful, they are let out upon the pasture by day. For example, a mixed herd of steers and heifers of various ages varying from twenty to thirty months now occupy nightly two yards opening upon a run of 40 acres of sound upland pasture in four plots opening into each other, well sheltered with belts of timber and with plenty of snug corners, over some part of which they roam and graze daily, inevitably finding out where the grass continues sweet and abundant. The dairy cows have a similar run, but younger stock are confined to a small enclosure of a couple of acres with a cosey yard and lodge. It may be thought upon what is literally a hill farm early driving to the yards is unnecessary, but it should be remembered that the rainfall of October is generally great—in this locality it exceeds that of any other month—and it is accompanied by occasional frosts and a fall of 10° of temperature, to all which it must be unwise to keep stock constantly exposed. On the 21st of October I was out upon the pastures in a pouring rain, and found puddles of water in every slight hollow of the surface, so that a beast could hardly have found a place to rest upon at night, and yet it is no uncommon thing for cattle to be left out upon low-lying marsh land throughout October exposed to the wet and to every wind that blows, for there are hardly any sheltering trees or hedges there. That such exposure proves hurtful, sometimes fatal, is certainly not to be wondered at.

It is part of the experience of many a landlord to have appeals for forbearance when Lady-day comes round and rents are due. "I have plenty of lean stock," says the defaulter, "but it is in such poor condition that if I sell it now it will be at a loss." What is the cause? Overstocking the yards in autumn with a

view to making large manure heaps; winter pasturage to help out the fast-dwindling ricks of fodder, resulting in a wretched low condition, for which subsequent months of high summer-feeding barely atones. Surely it is much better in every sense to reduce the head of stock now well within the scope of our means, and to feed sufficiently well to maintain a sleek healthy condition throughout winter. Breeders of first-class stock claim to make every beast gain £1 in value for each month of its existence; but those of us who have to maintain a dairy cannot do so profitably, but we may realise very respectable sums for beasts kept over two winters and sold off the grass to the butcher early in the following autumn if they are always kept up to a reasonable standard of condition.

That lean stock fared hard very generally last winter there can be no doubt, for most of it came to the early fairs in very poor plight, and yet what prices were asked and given! It was no uncommon thing for £14 or £15 to be obtained by dealers for lean, very lean, steers of twenty months at the May fairs. Who after this can say that the British farmer is wanting in courage? But the prudence of giving so much is certainly questionable. It was no longer ago than the preceding autumn that beasts of three years old were to be had for a similar amount, and those who were so fortunate as to buy then must certainly have had a good time this year. Some beasts of that age bought for that sum were ripe for the butcher in May, and were then closely approaching a dead weight of 100 stone of 8 lbs. They might have been killed much sooner, but were brought on slowly for the sake of the manure, which from well-fed beasts of that age is the very best form of farmyard manure.

When cattle are turned out upon the grass in spring they eat so ravenously that there is considerable risk of the stomach becoming overcharged and unable to act. Excessive fermentation then soon follows, gases are generated which cannot escape, the stomach becomes distended almost to bursting, and the hoove-stricken animal will soon die if prompt measures are not taken for its relief. Going down to the farm one morning I saw a young Kerry cow standing alone at some distance from the other cows, and I at once went to it, for however quarrelsome cows may be they always keep together if they are well, and when one is seen to leave the others and keep aloof it should always be examined. The cow in question was not in calf, and yet I found its stomach unusually large. It was neither eating nor ruminating, and had a heavy dull look. I at once suspected it to be suffering from hoove, but as it was my first case I proceeded with caution, and some time was lost in watching the development of symptoms which soon became clear and unmistakeable. The proper remedies were applied and the cow was saved. It was a favourite, and I was sorry to condemn it, but knowing the probability of lingering debility it was fattened as its milk gradually failed, and eventually handed over to the butcher.

The utter ignorance of the cause of hoove and its remedy that exists among men who have had charge of stock for many years is really surprising. In the case of the Kerry cow the bailiff actually told me that he had seen it upon a bank feeding with its face to the wind, which he had no doubt had blown down its throat and caused the hoove. Mr. Youatt's description of its symptoms and effects is so clear that I append an extract. "The animal gradually becomes oppressed and distressed. It ceases to eat; it does not ruminate; it scarcely moves; but it stands with its head extended, breathing heavily, and moaning. The whole belly is blown up. This is particularly evident at the flanks, and most of all at the left flank, for under that the posterior division of the rumen lies." "The animal cannot long sustain this derangement of important parts. Inflammation is set up, and the circulation becomes seriously and dangerously disturbed by this partial obstruction. Affection of the brain comes at last, characterised by fulness of the vessels, hardness of the pulse, redness of the conjunctiva, and protrusion of the eye. The tongue hangs from the mouth, and its mouth is filled with spume. The beast stands with its back bent, its legs as much as possible under him, and he gradually becomes insensible, immoveable; he moans, falls, struggles with some violence, and, as death approaches, some relaxation of the parts ensues, and a quantity of green sour liquid, occasionally mixed with more solid food, flows from the mouth and nose."

It by no means follows, however, that a hitherto healthy beast need die of it; only let it be taken in time, and remember, if the animal when first observed is moaning, not a moment is to be lost. The gas removed, preferably by a probang; but if that cannot be had, then recourse must be had to a trocar, or even to the rough-and-ready old method of stabbing the left flank and thrusting in a piece of elder to let out the gas. The acid fluid arising from excessive fermentation removed by the stomach pump and warm water, and Youatt's dose of 1 lb. Epsom salts,

1 oz. caraway powder, and half an ounce of ginger be given, and the most violent symptoms will soon disappear and the stomach begin to resume its proper functions once more. Of course a veterinary surgeon should be called in, but one is not always to be had at once, and it is all-important to know what to do.

Another cattle disease which has given me some trouble, but has in no case proved fatal, is Red Water. Hardly a year passes without one or more cases of it; but it has always been attacked with promptitude, and the beasts recover.—EDWARD LUCKHURST.

THE SMITHFIELD CLUB SHOW.

THE Exhibition which opened in the Agricultural Hall on Monday last is in every way a great success. The number of classes was slightly increased, the total value of the prizes in cups, medals, and money exceeding £3000; and there was a slight increase in the number of entries, as last year they were 503, this year 524—namely, 251 cattle, 187 sheep, and 86 pigs, while in quality the Show must rank as one of the finest if not the best that has ever been held. The list of prizes having been published in the daily papers we shall only record the winners of the breed cups and champion prize. After long and close examination the best steer in the Show was decided to be Mr. Lewis Lloyd's Hereford, and the best heifer Mr. Stratton's grand shorthorn. These prizes are £50 silver cups, to be won once only by the same animals. Next came the contest for the 100-guinea Champion Plate given by the Agricultural Hall Company, by agreement with the Club, and the Club's gold medal to the breeder. For a long while the chances seemed to be equal between the best Hereford, Devon, crossbred, and shorthorn. Then the number was apparently reduced to Mr. Stephenson's handsome iron-grey crossbred and Mr. Stratton's shorthorn. The shorthorn Lillian eventually received the coveted decoration (red and green), having won for her owner, who is also breeder, a £20 first prize, a £30 silver cup, a £50 silver cup, the champion plate and gold medal. She weighs 16 cwt. 3 qrs. 8 lbs. The heaviest beast in the Show, which gains no prize, and weighs 23 cwt. 1 qr. 22 lbs., belongs to Mr. T. C. Lucas of Horsham.

The machinery and implement department is also very extensive, both the galleries being closely packed, besides a large number of the heavier machines and engines on the ground floor. Such firms as Messrs. Clayton & Shuttleworth, Lincoln; Barrows & Stewart, Banbury; John Fowler & Co., Leeds; R. Hornsby & Sons, Grantham; Ransomes, Head & Jefferies, Ipswich; and the Reading Ironworks Company, contributed a great variety of excellent samples of all the most important agricultural machinery.

The exhibition of roots by the leading seedsmen is not quite so large as usual, but the roots generally are distinguished by moderate size and most excellent evenness of form, far preferable to the enormous coarse examples that have been sometimes seen there. Messrs. Sutton & Sons, Reading, as usual had a fine display well arranged, with large photographs of their warehouses suspended in front. Magnificent examples of the Champion Swedes, Berkshire Prize and New Golden Tankard Mangolds were noteworthy amongst the varieties represented. Messrs. J. Carter & Co., High Holborn, had a similarly attractive display, comprising large but even Swedes and Mangolds, with sample boxes of lawn Grasses. Imperial Prize-winner, Pomeranian and Mammoth Prize Swedes, White Globe Turnips, and Tankard Yellow Globe Mangolds were of unsurpassable quality. Messrs. E. Webb & Sons, Stourbridge, had a most tastefully displayed stand, and the quality of the exhibits is certainly very high. Imperial Swedes, Champion Yellow Globe, Mammoth Long Red, and New Kinver Globe Mangolds were amongst others represented in the finest possible condition. Other firms, such as Messrs. T. Gibbs and Co., Down Street, Piccadilly; Harrison & Son, Leicester; Raynbird, Caldecott & Co., Basingstoke; John K. King, Coggeshall, Essex; and Alfred Hall & Son, Westbury, Wilts, also staged smaller but meritorious collections of roots and seeds.

At the annual general meeting, held on Tuesday morning, it was announced that the Prince of Wales has consented to be President for 1883, and the Earl of Jersey for 1884. Sir W. Gordon-Cumming was elected Vice-President in the room of the late Lord Chesham. The Prince of Wales and the Duke of Edinburgh were made Vice-Presidents. Sir Brandreth Gibbs, for the fortieth time, after highly complimentary speeches, was re-elected Hon. Secretary, and a hearty vote of thanks was passed to Mr. Walter, M.P., the retiring President. The newly elected members of the Council are Messrs. J. B. Booth, H. Gorringer, J. Hornsley, F. N. Jonas, H. Fookes, A. Croskill, T. Brown, and Colonel Luttrell. The report of the Council was read by Sir Brandreth Gibbs, and passed unanimously.

POULTRY AND PIGEONS

THE POULTRY CLUB.

MEETING AT BIRMINGHAM.

A MEETING of the Committee of the Poultry Club was held at Bingley Hall, Birmingham, on Monday, November 27th, at 4 P.M.

There were present the Hon. and Rev. F. G. Dutton (in the chair), and Messrs. O. E. Cresswell, A. Darby, C. F. Montresor, and A. Comyns.

THE DISQUALIFICATION OF THE DARK BRAHMA COCK AT THE PALACE SHOW.—The Secretary reported that he had written to Mr. C. Davenport Jones, a member of the Club, in reference to the disqualification of the fourth-prize Dark Brahma cock exhibited by that gentleman at the Palace, and as to an allegation in the pages of the *Stock-keeper* that the wings of the cockerel also shown there by the same gentleman had been tampered with. It appeared that the fourth-prize cock was disqualified in consequence of both his wings having been observed after the adjudication of the prizes to be tied up with string. Mr. Jones stated as to this that the string had been put on simply and only for the purpose of keeping the bird's wings in proper position during his moult, and had been by an oversight left on by his poultryman in his own absence from home when the bird was sent to the Palace Show. He denied that the cockerel's wings had been tampered with by himself or any person with his knowledge, and stated that up to a short time before the Banbury Show the bird was out at a run at his gardener's cottage, and was not seen by him from the time he was quite a chick until just before the Banbury Show. He further stated that the man who attends to his birds, an ordinary gardener, and not a regular poultryman, assured him he had not, neither did he know of anyone having drawn a feather out of the bird. The bird was examined, on Mr. Jones's behalf, by Mr. E. Morgan of High Street, Hastings, Mr. F. C. Davis of Southampton, and the Inspector of the Royal Society for the Prevention of Cruelty to Animals at Hastings; and in the opinion of these gentlemen the bird had not been tampered with in any way. The bird was, at the request of Mr. Jones, examined by a Sub-committee of the Poultry Club on Wednesday, November 22nd, and the following was the report of that Sub-committee:—

"A special meeting of the members of the Committee residing nearest to London was convened on Wednesday, November 22nd, 1882, at 47, Chancery Lane, so that the cockerel exhibited by Mr. C. Davenport Jones at the Palace, and reported on in the *Stock-keeper* as having been trimmed, might be examined. This was done at the request of Mr. Jones. There were present—Messrs. T. W. Anns, J. C. Fraser, C. F. Montresor, and A. Comyns; Messrs. Leno and Tegetmeier, both of whom had examined the bird at the Palace, also kindly attended for the purpose of identifying the bird.

"A very careful examination of the wings was made. It was found that several of the lower secondaries of the left wing were but partly grown, while one was entirely missing, and that the upper primaries of the same wing were also but partly grown. The remaining feathers, both primary and secondary, of this wing were, with one exception, fully grown, as also were all the feathers of the right wing. The lower secondaries of the right wing were somewhat curved, which tended to prevent the primaries from going properly under the secondaries.

"Those present came to the conclusion that the state of the left wing could only be accounted for on the supposition that the partly-grown feathers and missing feather had been removed some time since to allow the primaries to slip under the secondaries, and thus get rid of the defect of a slip-wing."

It also appeared that Mr. Leno, who judged the birds at the Palace, and Mr. Tegetmeier, who, at Mr. Leno's request, also examined the bird at the Palace, agreed with the conclusion arrived at by Sub-Committee. Mr. Leno, who had at the Palace, in the first instance, highly commended the bird, subsequently, and before concluding the judging, discovered that the wing had been tampered with, and so entered it in his judging-book, intending to pass the bird over on that account, but had inadvertently omitted to remove the h.c. previously entered in his judging-book.

The following was the decision of the Committee:—

"The Committee can form no opinion as to whether the string was left on the fourth-prize Dark Brahma cock at the Palace Show accidentally or otherwise; but the Committee have reluctantly come to the conclusion, from the evidence before them, that the left wing of the Dark Brahma cockerel—pen No. 533—h.c., at the Palace Show, had been tampered with.

"They accept Mr. Jones's assurance that he had no personal knowledge of the transaction, but are compelled to come to the conclusion that his poultryman could not have been equally innocent. They, therefore, call upon him to discontinue the employment of such man in connection with his poultry as provided by Rule 21."

The Secretary was directed to communicate with Mr. Jones as to what action he intended to take in the matter.

DORCHESTER SHOW.—A complaint as to the withholding of prizes at this Show having been under the consideration of the Committee at a former meeting, the Secretary now reported that he had, as directed at the previous meeting, written to the Secretary of the Dorchester Show on the 18th November, asking an explanation of the withholding of prizes in certain classes, but that he had as yet received no reply. The Committee thought that some further time for an answer should be allowed to the Dorchester Committee before any definite action in the matter was taken, and the Secretary was directed to write again to the Secretary of the Dorchester Show.

NEXT MEETING.—The date of the next meeting was fixed for Wednesday, December 13th, 1882, at the Charing Cross Hotel, at 2 P.M.—ALEX. COMYNS, Hon. Sec., 47, Chancery Lane, London, W.C., Nov. 29th, 1882.

CHICKEN VACCINATION.

DR. D. E. SALMON stated in his Montreal address that he had discovered vaccination to be a cure, or rather a preventive, of chicken cholera. The vaccine matter is procured by diluting the

blood of a cholera-infected fowl in about the same way Pasteur obtains the attenuated virus with which he protects sheep against anthrax. A New York report of this address says:—"As a standard he has used a virus diluted 1 to 10,000. This produced a local lesion in some cases, which appeared in a few days, and this in two or three weeks was followed by fever. All such fowls were afterwards exempt from the disease, even if inoculated with strong virus. Some chickens were susceptible to a virus as weak as 1 to 75,000, and by such inoculation were rendered proof against attack. Fowls not susceptible to a weak virus proved to be so to a stronger. Thus by grading the strength of the vaccine, which was easily and quickly done, all fowls could be successfully inoculated, and so rendered safe from these fatal innocerophytes. We need much more experimentation to determine whether there are still better methods to attenuate the virus, and whether we can protect against danger from other contagions, such as Texas fever or pleuro-pneumonia, not to speak of various human diseases, by the use of a similarly attenuated vaccine, which may be easily secured by diluting the blood of an individual diseased or dead of any of these contagions. Pasteur is at present busily engaged in this direction."—(*The Prairie Farmer*.)

OUR LETTER BOX.

Farming (Marian).—For a young man studying agriculture we cannot recommend any better work than Morton's "Encyclopedia of Agriculture." In addition the student should peruse the articles on any particular subject published in this Journal during the past five years for practical directions.

Improving Pasture (Wager).—You state that you have unfortunately succeeded to 20 acres of land covered with a mat of couch grass, and ask for information as regards its treatment to bring it into sweet pasture on the lines recommended by Sir J. B. Lawes. We think that is not a question to be considered how many sheep should be kept per acre, but a question of feeding by a large flock of sheep if you possess one, in order that the couch may be eaten down as bare as possible. The sooner the better. The sheep to have 1 lb. of cake each per day in the meal state mixed with a few cut roots, and be penned in a close fold at night time, to be shifted on to fresh ground every day, the fold to be made on the poorest part of the field with the least couch upon it. But it should be remembered that unless a large flock is now kept it would not pay to buy sheep at present prices for the treatment of 20 acres of land only, besides which regard must be had to the future treatment of the field. The nature of the soil has not been stated, but the first treatment to eat down the couch is the most important, and if this cannot be done with profit by sheep it may be done equally well by young cattle or dairy cows. After the couch is eaten down close the land may then in the spring be dragged with Howard's self-lifting harrow in order to obtain a little loose earth to receive the seeds for renovating. The seed to be per acre 10 lbs. of white Dutch Clover, 10 lbs. of Cocksfoot, 10 lbs. of Meadow Foftail, and 10 lbs. of Timothy Grass, without any annual grass seeds, only adding 10 lbs. of Paey's Perennial Rye Grass, to be sown in the month of March, and the land after a good bite of grass is grown to be fed with cattle only, but no sheep to be allowed to feed thereon, as they eat out all the best grasses and Clovers to the injury of the pasture, the cattle to be allowed 4 lbs. cotton cake each per day. If the soil, however, is very light or sandy 5 lbs. of white Clover and 5 lbs. of yellow Suckling should be sown instead of 10 lbs. of white Clover, but the grasses as named to be sown, also let the soil be heavy or light. But the process of obtaining a pasture or turf which would supplant the couch would be very slow unless manures were used; therefore we advise in February in each year 4 cwt. of bone superphosphate should be sown, and if it is light soil 1½ cwt. of nitrate of soda per acre in addition. These annual applications, if supplemented by dressings of earth and manure composts occasionally, would much sooner produce a good turf. We must desire our correspondent to carefully peruse and study the contents of the series of articles just completed on "Neglected Pastures and Waste Lands."

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882.	Barometer at sea and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.				
November.		Dry.	Wet.			Max.	Min.	In sun.	On grass.			
December.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.		
Sun. 26	29.348	42.4	39.5	S.W.	43.3	48.0	34.9	66.8	34.8	—		
Mon. 27	29.418	38.0	35.8	N.W.	42.5	48.2	34.0	76.5	28.8	—		
Tues. 28	30.011	38.5	34.8	N.	41.2	48.1	34.2	71.6	30.1	0.252		
Wed. 29	29.715	42.5	41.9	N.	40.0	46.1	31.0	50.2	26.0	0.088		
Thurs. 30	30.081	40.1	39.0	N.W.	41.1	46.2	29.3	67.7	37.4	—		
Friday 1	29.992	32.2	31.2	N.E.	40.3	35.4	28.0	35.5	21.4	—		
Satnr. 2	30.116	28.8	28.8	N.E.	39.2	38.2	23.0	37.2	27.3	0.068		
	29.873	37.5	36.0		41.1	44.3	33.1	57.9	29.4	0.358		

REMARKS.

26th.—Generally fine, sprinkle of rain in afternoon.
 27th.—Very bright sunny morning, afterwards showery; moonlight night.
 28th.—Fine, bright, and cold.
 29th.—Rain early; damp day, with drizzle.
 30th.—Fine throughout.
 Dec. 1.—Thick fog early; hazy throughout.
 2nd.—Dark foggy morning; thick all day.
 Cooler, with much fog on the last two days.—G. J. SYMONS.



14th	TH	Royal Society at 4.30 P.M.
15th	F	
16th	S	
17th	SUN	3RD SUNDAY IN ADVENT.
18th	M	
19th	TU	
20th	W	Meteorological Society at 7 P.M. Society of Arts at 8 P.M.

SMALL v. LARGE FRUIT BORDERS.

AT the outset I may as well state I am fully aware that much I shall write upon this subject will be at variance with the theories and practices of others. This knowledge, however, is no deterrent, simply because some at least of these "old hands" cannot, if they would, disprove some of the facts I shall adduce in support of my arguments. We learn as much from failures as we do from successes; at all events such is my experience. Unfortunately some of these mistakes that are made are on too large a scale to rectify, or at any rate those responsible have not always the courage to admit their errors and profit by them, but leave others to point them out.

I propose to divide my subject into two sections. In the first I shall endeavour to prove that we make unnecessarily large and expensive borders for such house-grown fruits as Grapes, Peaches, Nectarines, and Figs; and in the other that we do not take sufficient trouble with them—in fact, do not do justice to such wall fruits as Pears, Apricots, Peaches, Nectarines, Plums, and Cherries. With the latter I anticipate no great difficulty, but the former will not, I fear, prove so convincing to others as I am anxious it should.

It is a curious fact, but true nevertheless, that in some places the Vine and other house-grown fruit borders are constantly being pulled to pieces and remade, this being either the work of one man, or more often of a fresh gardener on taking charge. Such frequent upsets, besides being expensive, are likely to prove annoying to the proprietor, who mentally vows that no more vineries nor Peach houses will he build. In other cases, when making and remaking large Vine borders, so great an extent of good meadow land is robbed of its thin and fertile surface soil without any attempt being made to renovate it by those responsible, that the owner is easily convinced by the steward or bailiff how wrong he was to sanction such a proceeding. No more turf worthy of the name will this gardener be allowed to cut. Another gardener insists upon buying so many loads of turf, besides bones, manures, and unlimited draining material, in this manner contriving to make the border cost nearly as much as the house. If the result generally justified the outlay it would not so much matter, but, unfortunately, it does not; the success is far from being permanent, and the work of border-making is recommenced.

I maintain these large borders were wrongly planned, and of this I have had ample proof. It seems a prevailing idea

that Grape Vines require an inside border to the full extent of the house, with probably a border of the same width outside, and most of us know what one or both means. If these borders were eventually taken full possession of by the roots it would be a different matter, but they seldom are, and I may say in some of these cases nobody knows where the principal portion of the roots really are. I have worked for days removing a large inside border, and have found the remains of old horses—these at one time being considered valuable additions to the Vine borders—but found no roots worth preserving, especially near the burying places. They were all outside and far away through the regular outside border and well established in the ordinary garden soil. In another instance there was a large outside border, which, like the preceding, was not walled in, and had not been much disturbed for years. It had been, so I was informed, annually well manured and otherwise attended to, but on examination I could find no active rootlets, these again being at the extremities of the old roots across a pathway into the vegetable ground, and fully 20 feet from the stems. In each case (I could give more such) if a small border had been formed, say about 9 feet wide, either inside or outside, and walled-in, much labour, room, and expense would have been saved, continuously heavy crops would easily have been secured, and great anxiety avoided.

Large borders as a rule result in uncontrolled root-action, whereas in a small border we know exactly where the roots are, what we have to deal with, and work accordingly. Large quantities of manure, liquid and solid, are annually thrown away on these large borders; but the network of roots in a limited border absorb all and repay for the supplies of rich food given them. Fresh turf may contain sufficient fertility for young gross Vines and other fruit trees at the commencement; but this is soon exhausted or washed away, and in deep borders the roots are out of this and away, too often downwards, before those in charge become concerned about their whereabouts. Now Vines or trees in narrow and comparative borders, like plants in large pots, almost command attention, and, added to this, the roots in these are easily kept alive and the border easily maintained in a fertile state.

If water is scarce then let this border be outside of the house, but if plentiful—and remember abundance of water is required—then let it be inside, as being still more under control. The inexperienced especially should not attempt a combination of the two unless they are certain of being able to maintain sufficient moisture inside, as the roots inevitably make for that most congenial, this generally being the moist outside border. Let those in charge of such combinations test the truth of this assertion, and either correct or corroborate it. There is no doubt much depends upon the intelligence of those in charge; but I believe I may safely assert there are more of us who could better manage small borders than large. Given a small border full of roots, and the Vines can be made wonderfully productive by a mere tyro; but the same man would fail with a large and unmanageable border.

Let me advise those contemplating planting Vines or fruit trees under glass to form neither wide nor deep borders. They can make no mistake about a border for Peaches, say 6 feet wide and 30 inches deep, the bottom being concreted and covered with 9 inches of drainage material; and for Grapes about 3 feet wider, and in other respects similar, unless they

eventually neglect to top-dress and to otherwise feed the Vines liberally. The second part of my subject must be postponed.
—W. IGGULDEN.

ABOUT DECORATIVE PLANTS.

IN many gardens the demand for small decorative plants is rapidly increasing, and large specimens in consequence are being discarded. Large plants are noble and beautiful when well grown and arranged where they can be seen to the best advantage; but they occupy too much room in gardens where thousands of small decorative plants are required. The object a few years ago when a plant was obtained was to repot it and grow it into a specimen; but now, if likely to prove useful, they are divided, and a stock obtained as rapidly as possible for decoration. It is very seldom that large plants are found in any number in gardens where decorative plants are largely grown, for it is impossible to arrange them so as to keep them in good condition, and at the same time present an effective display. But where small neat specimens are grown they are much more attractive, and can be removed and changed at will.

A few years ago fine-foliage plants were largely grown for table and room decoration, and many valuable old flowering plants were discarded to make room for them. But the fashion has changed, and flowering instead of fine-foliage plants are now in great demand. Perhaps there never was a time in the whole history of horticulture when flowers and flowering plants were in such constant demand for the many and varied forms of decoration.

Those cultivators who have both flowering and foliage plants to produce know the extra care and labour needed in producing the former. If we take the Cyclamen—one of the most lovely and useful plants that can be grown either for cutting or the various forms of decoration—we shall find they are on cultivators' hands at least twelve months. This length of time must elapse from the sowing of the seed before they are ready for the purposes for which they are grown. The same may be said of the single and double forms of Primulas, which are indispensable during the winter. It would not be difficult to enumerate many others—such, for instance, as Mignonette, Zonal Pelargoniums, Heliotropes, Celosias, and many more that take the same length of time, or nearly so, to have them in the best condition and in full beauty at this season of the year.

How is it with fine-foliage plants? If we take small Palms we shall find they do not entail half the care and labour to keep them in good health and condition for several years without even the trouble of repotting. They certainly must not be grown in too high a temperature, or they soon become too large, and will require occasional supplies of liquid manure. Crotons and Dracænas are easily produced, as good tops can be taken, rooted, and ready in a few weeks for purposes of decoration, and the same may be said of many other fine-foliage plants.

The length of time required in production is by no means the only matter to be considered. Where flowering plants only are used in rooms double the quantity have to be grown than are necessary with foliage plants. These then require proportionate house room in which to grow the plants. In how many gardens do sufficient suitable houses exist in which to grow decorative plants well? Low houses and heated pits should be liberally provided in all gardens where the demand for small well-grown decorative plants is large; but on the contrary, we often find a very limited quantity of suitable plant houses, and vineries and Peach houses have to be filled with plants. This necessitates constant removal of the plants from house to house, and not unfrequently is the means of red spider and thrips establishing themselves upon the Vines or Peach trees. I have in two instances had leaves of whole vineries to sponge, in one through red spider establishing itself upon a Tea Rose which passed unnoticed, and from it to the Vines, and in the other through thrips. I am certain that mealy bug is introduced into vineries chiefly through turning them into plant houses. It is surprising the success that attends plant-growing under such difficulties; but it is impossible to produce them in the same excellence as if proper houses were provided in which to grow them.—W. BARDNEY.

SUTTONS' READING EXHIBITION BRUSSELS SPROUTS.—Through the kindness of a friend, who sent me a few plants in the early part of the year, I have been enabled to grow the above variety for the first time, and have much pleasure in bringing the same before the notice of those of your readers who take an interest in kitchen gardening, and strongly advise them to procure a packet of seed of it in the spring—i.e., if obtainable. Last year the crop of seed proved a failure, hence it is that this season it is only in the hands of a favoured

few. The plant grows to a height of about 18 inches, and is studded with large handsome sprouts as hard as bullets, which are of excellent flavour. Taking all points into consideration it may appropriately be described as being a very superior variety, and is worthy of special commendation.—J. HORSEFIELD, *Heytesbury*.

PLANTING, PRUNING, AND TRAINING FRUIT TREES.

THIS is a matter in which looseness both in teaching and practice is apt to creep in, to the injury of the trees, and consequently to the subsequent loss of the planter. Those of us who assume to be teachers of gardening must be heedful of this, and take especial care to show why the method of culture we recommend is the best. It is not enough to dogmatise, and say Do this or that, in these days of keen intelligent inquiry into cause and effect. We cannot enter too minutely into details when treating of the culture of any crop, but fruit trees which may remain where we plant them for two or three generations merit especial care, particularly at the outset.

Will those who advise the training of trees horizontally tell us why they do so? Why, too, are we so frequently advised to refrain from pruning a newly planted fruit tree till the sap is in motion in spring? I am still a good many years on the right side of fifty, yet I have lived long enough to see a large number of fruit trees planted in that best of all soils for fruit-growing—a deep fertile loam, trained horizontally, attaining full development in size, form, and fruitfulness, and then gradually becoming more and more vigorous in the top branches at the expense of the lower ones, till they were comparatively worthless and were cut down to be replaced by palmette verriers and cordons. I am not wont to favour rigid rules of culture, but in fruit-tree management there are two or three rules that must be enforced as strictly as the laws of the Medes and Persians. One of them is that, whatever be the form of a fruit tree, all its branches must point upwards, either vertically or at a sufficiently acute angle to induce a prompt and free flow of sap and a sufficiently equal distribution of vigour through the tree. Now, after a horizontally trained tree is brought into fruit-bearing it never does this. Hence the undue vigour of its upper spurs; hence, too, its condemnation and the substitution of palmette verriers, with the end of every branch not only pointing upwards but upon a common level, so that in a full-grown tree the tips of the lower branches are as high as the pair at the top of the stem. Surely no one after seeing a full-grown palmette verrier could ever dream of reverting to horizontal training; for the improved form so thoroughly exemplifies the equal distribution of vigour, and is so handsome withal, that it excels all other modes of training.

Turning now to my second question, which is of even greater moment at this season of the year, and which, I may repeat, is, Why are we so frequently advised to refrain from pruning a newly planted fruit tree till the sap is in motion in spring? The advice so clearly bears caution upon the face of it that "For safety" is the only answer we can imagine. This answer naturally leads to the question, Is it, then, dangerous to prune when planting—say in autumn? I emphatically assert that it is not; only take care to select healthy young trees in full vigour, see that the transplanting is well done, and prune at once, not simply because you may do so with impunity, but because it is decidedly the best for the trees. To wait till the sap is in motion certainly involves a loss of time as well as of vigour. The bud to which we prune contains the germ of a branch which it is important should be as robust as possible, and yet we are advised to weaken it by leaving other buds above it to waste the first flow of sap and then be removed! Is not this rather like doing a thing because somebody said it was right, without inquiring if it really is so? Never let us forget that it is the swelling bud which attracts sap from the circumjacent tissue and causes it to flow, and not flowing sap which forces the bud into growth. It was upon some standard Apple trees that I proved the fallacy of waiting till spring before pruning, and the matter was discussed in the Journal about thirteen years ago. Since then I have planted a considerable number of all sorts of fruit trees—Apples, Pears, Plums, Peaches, Nectarines, Apricots, Figs, and Cherries, and have pruned when planting with invariable success, the first year's growth always being as sturdy, stout, and strong as could be wished.

It is, however, by no means intended to imply that time'y pruning was the sole or even the primary cause of this success, for careful transplantation is even more important. Mark the term! I use it intentionally, because young trees often sustain injury from an undue exposure of the roots to the air. The lifting and packing is sure to be well done by a good nurseryman,

and it should be the planter's care to unpack them and cover the roots thoroughly with fine soil as soon as he receives them. Planting cannot always be done at once, nor need it be pressed on till a favourable opportunity offers, if the roots are only so protected from the drying shrivelling action of the air.

Plant only in soil that you know to be fertile. Do not mind not having that "sweet upland loam," which we would all get if we could. It cannot be too often repeated that soil which will grow good vegetables answers equally well for fruit, only take good care there is enough of it. Never plant in a shallow soil because of the great risk—in many sorts the certainty of canker and premature decay. Every tree should have a station 6 feet square and 2 feet deep. Excavate a hole of that size. If the sub-soil is of a close heavy texture likely to retain much moisture, lay a 2-inch pipe drain across the middle of the bottom, and connect it with the nearest drain or outfall; then ram hard a 4-inch layer of broken stones all over the bottom, and fill with good soil, from which remove every particle of roots or pieces of wood, decaying wood being a nidus for fungus, which spreads to the roots and destroys the tree. Remove all bruised roots with a clean cut, spread out the others evenly and at full length; pack the soil closely among them and trample it firmly, taking care that the surface of the station about the collar of the tree is 6 inches above the common level to allow for its sinking. Secure the tree firmly in its position by stakes or wires; fasten a weather-proof label with its name and date of planting to it; cover the entire surface of the station with a mulching of any rough litter—then, and not till then, may you consider that you have done all that is necessary at the time of planting. Do not put off the naming, as is so often done; enter it also at the same time upon its place in the garden plan, and then if a label is lost you can always replace it correctly.—EDWARD LUCKHURST.

SERICOGRAPHIS GHIESBREGHTIANA.

THIS plant has long been known and valued by gardeners as a winter-flowering plant for the warm greenhouse, but I believe it is not generally known that it is a most valuable plant for covering the back walls of vineries or other fruit houses.

We have here three plants, each about 6 feet high and the same in diameter, trained over the back wall of a lean-to vinery, the roof of which is quite covered with the Vines. They are planted out in a narrow border, which is separated from the Vine border by a stone-flagged pathway. The growths they have made during the past summer are very strong, much more so than we ever see them when grown in pots, and they have throughout the summer been very ornamental with their ample Laurel-like foliage of a dark and glossy green. During the whole of last month they have been one bright glowing sheet of scarlet, as from near the ground to the topmost points they are quite covered with long spikes of *Salvia*-like scarlet blooms.

Although the house is kept quite cool, as the Grapes are now all cut and the Vines at rest, yet the blooms expand freely and last well when cut. We find them most useful for arranging with *Chrysanthemums*; and although we are cutting them in quantity nearly every day, the display is yet as bright as at first owing to successional spikes taking the place of those cut. The ladies here are much pleased with it, and are proud to show it to their friends and visitors.—W. K. W.

CRAB v. PARADISE STOCKS FOR APPLES.

DWARFING stocks have been for a long time recognised as suitable for Apples; nevertheless, I feel sure that the Crab stock has been banished from some gardens when it would have been better retained. In my own case I am planting young trees budded on the Crab, as I find almost without exception that the stocks used by nurserymen do not live in this soil. The only exception I can name is Ecklinville Seedling, which does well; but even such popular kinds as Lord Suffield and Stirling Castle continue in health for a few years only. One of the very worst is Hawthornden, which will not grow at all. Our soil is rich and light, with a substratum of gravel near the surface. It would be interesting to know the experience of others with soils of a similar character.

The plan adopted to remedy this disappointing state of things has been to purchase stocks of the common Crab at this season, grow them on for a year, cut them down, and bud on the young wood of the following year. We have old and healthy trees on a free-growing stock, and expect that young trees on a free stock will do as well now as they did half a century ago. The best Apples for the particular garden should alone be propagated, no matter whether the name is known or not. When a gardener is expected to keep an average daily supply of, say, half a bushel Apples for

four or five months, it does not so much matter knowing the names of fifty varieties, as it does to know the half-dozen sorts that are practically sure to yield a crop year after year and enable him to meet such demands with ease.—B.

LINARIA VULGARIS VAR. PELORIA.

THE plant, of which a flowering spray is represented in fig. 92, and which is referred to in the article on page 552 as growing in the gardens at Keir, is an example of a peculiar phenomenon

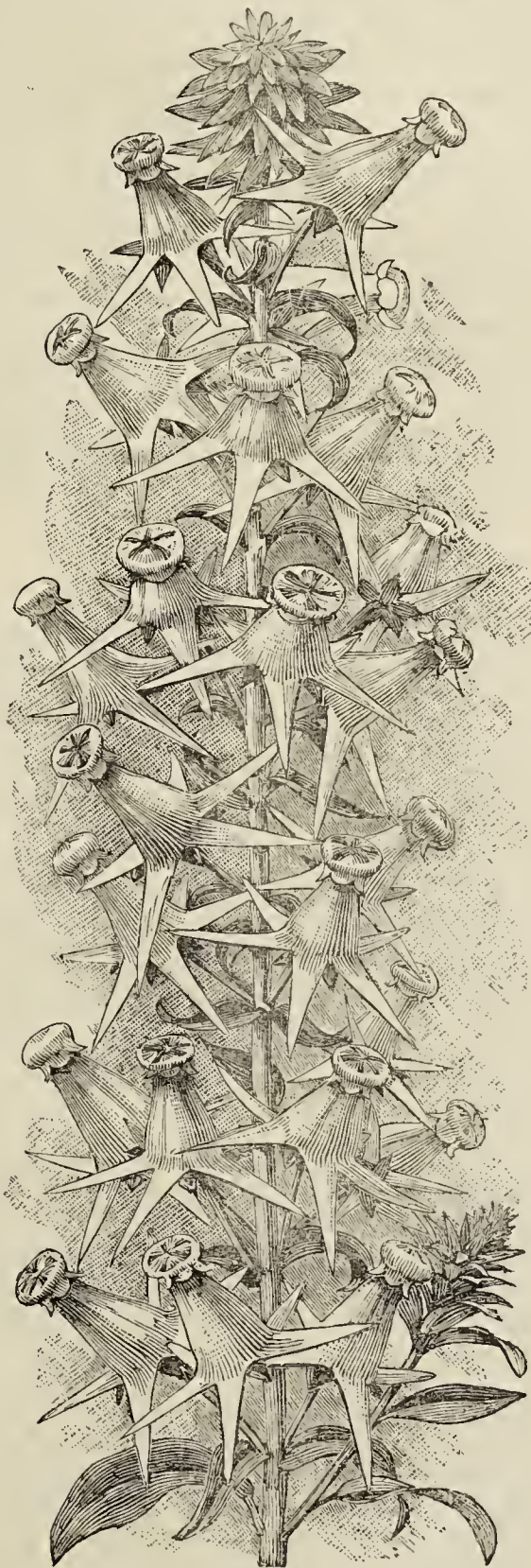


Fig. 92.—*Linaria vulgaris* var. *Peloria*.

that is occasionally observed in flowers, and is termed *Peloria*. This consists in the transformation, or, according to some botanists, the reversion, of what are usually irregular corollas to a regular form. For example, in the *Linarias* and *Antirrhinums* the corollas, as is well known, have commonly a two-lipped form, to which the term "personate" is applied, the chief difference between the two being that the corollas of the *Linarias* are furnished with a spur at the base and those of the *Antirrhinum* are without this appendage. In the case of the variety *Peloria*, however, this two-lipped form quite disappears, the upper part assuming a conical shape with the extremity five-cleft and sharply revolute, the base

being furnished with five spreading spurs, giving the flowers a totally different appearance. The species itself is an attractive plant, but this variety is superior to it, as the flowers are produced so abundantly that they form a dense spike 6 to 9 inches or more in length, and of an extremely pleasing yellow colour. As a garden plant it is much appreciated both on account of its peculiarity and its beauty, and as it is readily increased by its roots a stock can soon be obtained. Occasionally fine specimens may be seen at exhibitions where classes are provided for hardy plants, and they form some of the most effective for such collections.

Though not very common, this *Linaria* has been long known both to cultivators and botanists, and in the sixth fasciculus of Curtis's "*Flora Londinensis*" are given some interesting particulars concerning the history of the plant, as follows:—"The earliest account that we find of the *Peloria* is in the first volume of the '*Amœnitates Academicæ*' of Linnæus, published in 1749. It there forms a distinct thesis or dissertation written by Daniel Rudberg, who enters minutely into the history of the plant, describes it fully, and illustrates it by an engraving. The plant appears to have been first discovered in the year 1742 growing in a province of Sweden about seven miles from Upsal by a botanical student named Zioberg, who gathered a specimen of it, and placed it in his herbarium as a plant he had not met before." Professor Celsius observed this specimen, and called the attention of Linnæus to it, who secured plants for the Botanic Gardens at Upsal. Linnæus, it is said, at first considered it a new genus, but further examination proved that it was only a variety of *Linaria vulgaris*, or *Antirrhinum Linaria* as it was then termed. Plants of the variety *Peloria* have been found wild in several parts of Great Britain, but it is very rare.

DEW IN HOTHOUSES.

I AM much obliged to Mr. Taylor for his offer to answer queries on this subject privately; but I am not at present seeking information in that way, and I feel sure you will not think I am occupying your pages frivolously in returning shortly to a subject on which Mr. Taylor has said "his whole theory and practice of giving air is entirely based," and which he says he is quite alive to the importance of. I think the subject is both interesting and important; and the question is not one of answering elementary questions, but whether the theory laid down by Mr. Taylor to your readers is the correct one. If I misunderstood Mr. Taylor on the subject of the dew-point, and he means what I mean and explained on that point, then it seems he does not differ from "W. Y.," who, he said, was right on the subject of dew outdoors but wrong on dew in hothouses. Mr. Taylor makes it appear that the cause of the production of dew under a rising temperature is distinct from that which takes place from a falling temperature, which is not the case. In both cases the cause is a lowered temperature coming in contact with a warmer one and producing condensation. To assert anything else is contrary to the text books and only tends to confuse the reader. Neither do I think Mr. Taylor is at all correct in teaching that "a dew deposit in any way is one of the things we have to guard against" with a few exceptions in the case "of decorative plants that have not very soft foliage," &c. This idea of Mr. Taylor is to me quite new as well as directly opposed to the teachings of Lindley and others, who have pointed out that the absence of dew in hothouses was not an advantage but one of the distinct drawbacks of artificially heated glass houses. Speaking of dewing in hothouses, Lindley advocates it by every practical means, observing that "in this as in all things else the operations of Nature should be imitated with all the exactness possible." Dew on Vines, Peaches, or plants at night is one of the most satisfactory signs I know of, especially when the plants are growing, but it is never seen hardly except after hot days when pipe heat has been dispensed with during the night, when dew is always condensed or deposited on the leaves.—CASUAL.

THE subject of dew on plants in houses has been lately discussed; but the question of the deposit of dew on the leaves of plants in glass structures, and more particularly on Grapes, rests on one simple fact. All cultivators of the Vine under glass must have observed that when air is not admitted sufficiently early dew will be deposited on the berries, and more especially when the temperature inside is not obtained artificially; and if air is not then admitted very carefully scalding of the foliage and rust on the berries will be the result. If the temperature is artificially raised internally the foliage, fruit, and every object in the house is of the same temperature, and moisture will not then be condensed. Mr. Taylor evidently understands the question of dew-formation, and his practice is to raise the inside temperature early

in the morning, admitting air also early, so that no dew shall be deposited. This appears to be the whole of the argument, and, so far as my knowledge goes, is all that Mr. Taylor professes. My opinion is that much of the scalding of which we frequently hear complaints and see examples is due to too low a night temperature being maintained, and that the fires are not pushed on rapidly enough early in the morning, the sun then acting on the Vines with increased power however early the ventilators are opened.—JOHN GADD.

ROSES FROM CUTTINGS.

I HAVE tried three methods of Rose-growing, and now give the results of my experiments.

1. On the 29th of July, 1881, I inserted in a bottomless box cuttings from Gloire de Dijon, Coupe d'Hébé, Duke of Edinburgh, Princess Louise Victoria, Marie Baumann, Madame Moreau, Miss Ingram, and Xavier Olibo. I covered the box with a sheet of glass and made it air-tight. I kept it closed for fully a month, and then opened it in fine weather and supplied water as was necessary. I kept on the glass during last winter. The cuttings of Miss Ingram and Xavier Olibo all failed; of the others 40 per cent. have succeeded, and these are now well-rooted plants.

2. On the 1st of November, 1881, I planted out in the open air a number of cuttings from twelve varieties of Roses. I protected them with litter during the winter, and watered them in spring when necessary. From these I have very few plants, and only of three kinds—Gloire de Dijon, La France, and Duke of Edinburgh. Only 11 per cent. of those slips succeeded.

3. On the 30th of November, 1881, I inserted under a hand-glass cuttings from Camille Bernardin, Sir Garnet Wolseley, Thomas Mills, Duchess of Edinburgh, Gloire de Dijon, and of these 90 per cent. have succeeded.

But, notwithstanding my many failures, I am happy to say that from these slips I have at this time (1st November) a goodly number of excellent well-rooted plants, and I have tried all the three modes this season again.

I may add that the soil is rich loam, and that I mix a good quantity of river sand with it.—AMATEUR, *Strathbogie*.

CULTURE OF HORSERADISH.

THE present being a good time to prepare for next year's supply of Horseradish, I offer a few remarks which, if followed, cannot fail to bring some first-rate roots, young and tender, the produce of one year's care; and instead of having to dig perhaps a rod of ground to find one stick that is presentable, the first may be taken with the certainty of its being good. Prepare a portion of ground large enough to grow one year's supply by trenching, or, what is better, double-digging, and apply a dressing of decayed manure as the work proceeds, and let it remain rough on the surface exposed to frost till March, which will be the month for planting. It is often said that any corner will grow Horseradish, but experience teaches that open ground will grow it best, and when well managed a few rows of Horseradish look well in any garden, whereas on the old corner principle it is generally overrun with weeds, and will, if the old saying be true, give trouble for seven years.

To prepare the sets take the long side shoots, any size up to the size of the little finger, and from 8 inches to 1 foot in length, then with an old blunt knife carefully scrape off the little side roots to within an inch or two of the bottom, rub them with an old piece of cloth, tie the roots in bunches of two dozen more or less, and bury them in soil or ashes in the bunches level with what will be the crowns, then when planting time comes examine them and break away any growths they may have made except two or three at the crown. If properly done there will be no roots but those on the portion left for that purpose at the bottom. By this method we not only get it straight but rootless as well, consequently it can be easily scraped for use, and being of one year's growth is young and tender. The sticks will vary from 1 to 2 inches in diameter, according to cultivation.

In March mark out the number of rows required from 15 to 18 inches asunder, and dibble the roots in 15 inches apart in the rows, or, better still, with the spade dig out a trench the required depth and place them at the side by the line, filling the trench firmly, just covering the crowns. Keep them free from weeds, and lift the roots any time after the leaves have died; prepare sufficient side shoots for the next year, and lay the remainder in to be used as required.

I may add that an article on the culture of Horseradish appeared in the *Journal of Horticulture* four or five years ago. Since that time I have grown mine on the principle there recom-

mended with great success. It may appear that much preparation is required, but in practice it is not so. A man can soon prepare the sets, and it takes but little time to plant them, and if done well success is certain.—S. J. A.

BOUVARDIA ALFRED NEUNER.

It is questionable if any new plant of recent years has more fully sustained the character given it when first sent out than this Bouvardia. Those who have grown it will be able to say that a word too much has not been said in its favour. The merits of the single forms are well known for purposes of button-holes and bouquets, but this beautiful pure white double form surpasses them for such purposes. It is very free-flowering, and I do not think any single form in cultivation is superior to it in this respect. It is of robust growth and good habit, and will, without doubt, become one of our most popular winter-flowering plants. The flowers last a long time after they are fully expanded, both in a cut state and upon the plant, and on this account are valuable for cutting. Those cultivators who have white flowers to produce during winter and have not grown it may safely obtain it at once, so as to raise a stock for another year. It is worth a place in every garden.—SCIENTIA.

WINTER-FLOWERING PLANTS.

(Continued from page 527.)

AN abstract of a paper read before the Young Gardeners' Mutual Improvement Society, Royal Gardens, Kew, by Mr. Garrett, foreman of the flower garden department.

HARDWOODED PLANTS—ERICAS.

So far I have referred only to plants that are more or less soft-wooded, except those that were selected from the stove and Orchid houses. In addition to these there is a considerable variety amongst hardwooded greenhouse plants that flower in the autumn and winter, and as these are totally distinct in their growth they require very different soils and treatment. Many hardwooded plants are annually killed by overwatering after being newly potted, and others meet with a similar fate from being allowed to become too dry. Careful treatment as regards potting and watering are absolutely necessary for the successful cultivation of such plants as Ericas, Epacrises, Azaleas, Eriostemons, Chorozeas, and many others. Ericas are supplied in the greatest quantity in autumn and winter in two varieties—namely, *E. gracilis autumnalis* and *E. hyemalis*. These are probably grown as well in the neighbourhood of London as anywhere. Several extensive growers, who know exactly how to treat them, grow and supply them annually by the thousand to nurserymen and salesmen at a cheaper rate than the latter could grow them themselves. An enormous number is also grown annually to supply Covent Garden Market. Another cause of failure with many hardwooded plants is caused by insufficient care in potting. They should never have their stems buried below the surface of the soil, neither should the balls of soil be dry when repotted, or they will not be soaked through without saturating the new soil. Although water must be applied sparingly after repotting in spring, the plant will bear a copious supply when established in the summer, but much depends on the strength or the variety of plant as to whether it will require little or much. Ericas and Epacrises begin to flower early in autumn, and will last a long time in a cool house where fire heat is seldom used except for keeping out frost.

AZALEAS.

Azaleas mostly flower after Christmas, but if the plants are well ripened and forced a little each year some of the early varieties will flower some time before this. Those with white flowers are extremely useful for cutting if the plants are large enough to allow of it being done. Two of the best for forcing are *A. anemonæflora plena* and *A. indica alba*. *A. amœna* is generally the first to flower amongst the coloured ones; it will force well, and is very bright and pleasing.

CAMELLIAS.

Camellias invariably flower well in winter if supplied with plenty of water and air on all favourable occasions. A place is found in many gardens for planting them out either in a part of the conservatory or against back walls in other houses; they are much better treated in this way, and do not require attention so often in watering, &c., as when grown in pots or tubs. The old white variety *C. alba plena* is one of the best and is generally the first to flower.

BULBS.

We have yet another class of plants that are extensively grown, and are amongst the most beautiful when forced early—namely, Dutch bulbs and Lilies of the Valley. The earliest consignments of bulbs are received from Holland about the middle of August. If potted soon after their arrival and carefully forced the early Roman Hyacinths, Double Roman, and Paper White Narcissus will begin to flower by the end of October, and if successional batches are potted

and brought on in the same way these beautiful sweet-scented flowers may be had the whole winter. Most of the large-flowering Hyacinths arrive later, and it requires a much longer time to get them in flower. Lily of the Valley is imported in quantity about the end of October as clumps and also as single crowns. The single crowns imported from Berlin are the best for early forcing; those from Hamburg, which are larger and are much grown, will not force well until later in the season. They require potting lightly and plunging in a bottom heat of about 90° to start them. As soon as they commence growing the crowns should be kept in a little cooler temperature to assist the leaves to come with the flowers, leaving the pots still in the bottom heat. A small frame purposely for them affords the best means of treating them in this way. The flowers often appear when early forced without the leaves, and sometimes this cannot be avoided, but if the leaves can be had at the same time they are almost equally valuable with the flowers.

Early Tulips, especially the Duc Van Thol varieties, may be had in flower by the end of November, and are always much admired. The first pots of bulbs in flower are always looked forward to with much interest and pleasure, as they seem to bring with them many of the beauties of spring to brighten some of the dullest days of winter. While on the subject of bulbs the American Tuberose must not be omitted. The bulbs of these are imported, I believe, about February, and should be potted in batches and grown in frames in the summer, introducing them to a little heat as their flower spikes advance in growth. When the bulbs commence growing the numerous shoots on them should be reduced to one to form a flower spike, and naturally the best one should be selected. The flowers may be taken singly from the stem and used for buttonhole or other bouquets. Being highly perfumed and pure white they form worthy companions to the Gardenia and Eucharis.

The flowers of the Christmas Rose (*Helleborus niger*) are very useful for cutting purposes. The plants flower in the open air in winter, but are very much improved if placed in a house where there is a little heat. Good clumps produce a quantity of flowers which command at times a high price in the flower market, especially if they have expanded under glass or protected from the weather in some other way.

VIOLETS.

I now come to the last, but by no means the least in point of merit or usefulness, of the winter-flowering plants. What may be justly termed universal favourites at any time in the year, when even only a few can be obtained, are Violets. These are found in almost every garden where there are a few frames, but in many cases the plants are small and infested with red spider, consequently the flowers are small both in size and quantity. Violets for winter must be started as young single plants in May in a piece of prepared ground, and be kept watered and syringed freely to have good plants by the end of September, when they should be transferred to their winter quarters in frames where a little dung heat has been previously prepared. Fire heat is very injurious to them, and should be avoided if possible, as the plants are so subject to the attacks of spider. They require plenty of ventilation on sunny days or when the weather is mild. One of the worst enemies to Violets grown in the neighbourhood of London is fog. So far from flowering, the plants will scarcely exist if exposed to many London fogs. If they are in frames as advised and a fog is expected, the best plan is to close them and keep them so until it is past. This will sometimes cause the plants to damp, but of the two evils the least must be chosen. Some of the single Violets are very hardy, and will do well outside in the country except in severe winters, but most of the double varieties require glass protection to open their flowers satisfactorily. The best double variety for winter that I have seen is Marie Louise. The old Neapolitan is perhaps the sweetest scented, but it does not flower much before spring, while Marie Louise is much hardier, and begins to flower as early as August or September, and continues in favourable weather until the plants begin to grow in spring. Violets are in great demand in all private gardens, hence the importance of giving them special attention.

POTTING, SOILS, AND MANURE.

A few words in conclusion on the subject of potting as applied to the plants I have mentioned. Some of the principles may be extended to all plants, according to their growth and requirements. This may seem somewhat elementary, as most gardeners, even the younger members of the profession, think themselves proficient in this important branch. Plants, however, by their sickly appearance often tell a different tale. Wherever fibry loam can be obtained it should be used in a large proportion for all plants of the softwooded class that have to remain in the pots for any length of time. Neither peat nor sand is necessary after they are established and ready for the final potting if a little leaf soil and plenty of charcoal can be obtained. In many places this cannot be obtained in quantity, but in many others it is not used when an application would bring a plentiful supply. Soils that quickly decompose should be limited with this class of plants, as in my opinion it is better to supply a plant with liquid manure as it is required, or some of the artificial manures, of which Standen's and Clay's fertiliser are two good forms. Loams are very variable in different places. In the neighbourhood of London it is difficult to get soil with much fibre in it, consequently something lighter has to be mixed with it to keep it from clodding

disintegrable silicates, first of all accelerate the decomposition of the silicates by the action of the carbonic acid generated in the process of decay; and then, as these substances diminish the absorptive power of the soil for silicic acid, as soon as this acid has passed into solution it is distributed through the soil more widely than would have been the case had these substances not been present."

But even yet we have not exhausted all the beneficial influences on the growth of plants which the carbonic acid resulting from the decomposition of decaying vegetable matter and humus exert; but the consideration of these further influences I must postpone to another and concluding letter on humus.—INQUIRER.

(To be continued.)

COAL TAR AND CLAY v. MEALY BUG ON VINES.

IN answer to your correspondent "C. M." I beg to inform him that Mr. Murray's recipe for destroying mealy bug on Vines is equal parts of coal tar (common gas tar), clay, and water thoroughly incorporated by frequent stirrings until the whole mixture becomes of the consistency of cream. It can then be applied freely to cover the bark and buds, and the filling-up of all holes and crevices, without fear of it doing the slightest injury to the Vines. I had the early house of Vines here painted with the mixture yesterday, and I feel confident, after Mr. Murray's experience, that it will destroy the mealy bug and do no injury to the Vines.—A. PETTIGREW, *Castle Gardens, Cardiff*.

IN reply to "C. M." on page 524, I have to inform him that it was common gas tar that was used here, about a fourth of tar to equal quantities of clay and water, one man keeping it well stirred during the time that another man was applying it to the Vines, rubbing it well over all the cane, eyes included. We had some Lady Downe's more affected with bug than any others, and were prepared to remove them in spring if they suffered from the treatment we gave them. In their case the tar was used much stronger than the quantity given above, but the dressing had not the slightest ill effect, as the eyes broke as freely as those on the other canes in the same house. We paint all the wires and rafters in the vineries with paraffin oil, as it is no use trying to get rid of mealy bug on Vines by cleansing the Vines only.—DAVID MURRAY, *The Gardens, Culzean Castle*.

GRAPES FOR SEPTEMBER.

YOUR correspondent, "J. E. R. I.," asks some questions about Grapes which I venture to reply to. In the first place, there can be no doubt that the Muscat Hamburg is a Grape of splendid quality. Its chief fault is that it sets badly, but with adequate attention in regard to artificial impregnation this can be overcome. I would crop it lightly, give it a Muscat temperature with plenty of air, when such can be given without cooling the house too much. I would rather have it on its own roots than on any other stock, though it does well on the Black Hamburg with the extra attention above referred to.

In regard to the Duke of Buccleuch I would advise your correspondent to try it on its own roots, if such a course is convenient for him; if not, he need not hesitate to graft it on the Black Hamburg or a Muscat, as I have had it on these stocks and found it do remarkably well. The border being all inside in the house is much in favour of the Duke. If "J. E. R. I." simply wants Grapes for the table, and especially if they are not to be subjected to packing and travelling, he might safely plant the four kinds he mentions—viz., Muscat of Alexandria, Muscat Hamburg, Duke of Buccleuch, and Madresfield Court. These varieties, if started about the middle of February and generously treated in regard to heat and judicious ventilation, should be in good condition for the table by the middle of September.

I would advise that the Duke and Madresfield Court be planted together at one end of the house, and if possible a watertight division put in the border, so that they could be treated to less water at the roots than the other two; but they could be kept drier than the others without such a division. This is one of the essential points in the successful cultivation of the Duke and Madresfield Court. When they are given too much water cracking is almost sure to result. Let the directions that have already been given for the cultivation of the Duke be followed, such as always maintaining a succession of young rods. In pruning leave three or four eyes, selecting the most fruitful shoot when such can be decided upon, rubbing off the rest. A touch with a feather when in bloom is an attention well repaid in the case of the Duke as well as the Muscat Hamburg. Should the Duke show signs of

cracking, notwithstanding careful watering, a nick with a knife on the laterals the bunches are on between the bunch and the main stem is of great assistance in stopping the evil. Success with any Grape can only be attained by giving Vines all the conditions favourable to them. Good borders, and keeping them so with good cultivation, are needed to be permanently successful with any variety of Grape. Taking it for granted that "J. E. R. I." is both able and willing to supply these essentials, I have no hesitation in advising him to plant the four kinds mentioned. They combine so many good qualities that the difficulties that attend their cultivation should not deter anyone from growing them. They can be made to do perfectly well in the same house, always remembering about the watering of them.

There are other Grapes that "J. E. R. I." might grow for use in September. What says he to the grand old favourite Black Hamburg? Surely he does not esteem it lightly. He might have it, Foster's Seedling, and Buckland Sweetwater for September use, but they are deficient in flavour when compared with the first mentioned varieties. Some growers lay great stress on the necessity for lean-to houses for Muscats. My experience is that either lean-to or span-roofed structures can be made to produce first-rate Grapes. I would advise "J. E. R. I." if he plants the four high-class Grapes and is successful with them, to use the Duke and Madresfield Court, first allowing the Muscats to have a little longer time to ripen.—VITIS.

[This article is written by one of the most experienced and successful cultivators of Grapes in Great Britain, and we quite agree with him on the merits of the varieties recommended when all of them are well grown.]



AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday last, Geo. F. Wilson, Esq., F.R.S., in the chair, the following candidates were unanimously elected Fellows, viz.:—Colonel Beddome, General Duke, Mrs. General Duke, Arthur George Grote, Henry W. W. Nutting.

— "W." observes:—"There is now a fine display of GREENHOUSE RHODODENDRONS of the Princess Royal type in bloom in the Handsworth Nurseries, Sheffield. Four or five large houses are quite filled with specimen and half-specimen plants, all in the most vigorous health, and more or less covered with large trusses of bloom. The stock of plants at these nurseries numbers many thousands.

— "IN the same nurseries Orchids are now grown in very large numbers. There is also a fine display of CYPRIPEDIUMS in flower, including the new *C. Spicerianum*. In one of the cool houses there are upwards of a hundred plants in bloom of *Masdevallia towarensis*, the pure white blooms of which are most valuable made up into sprays, wreaths, &c., for ladies' wear, also as buttonhole flowers for gentlemen.

— "IN a house filled with Pelargoniums, Regal and French varieties, I noticed a large group of a variety called MADAME CHAS. KÖNIG, every plant of which is now flowering freely, and as the blooms are pure white without any markings whatever they are most valuable for cutting. Mr. Williams, the able indoor foreman, tells me it is the most free and continuous-blooming of any variety; in fact, while the plants are growing freely it is never without blooms."

— MR. G. G. KERTICE writes:—"Allow me to correct an error into which your correspondent has fallen in connection with the CALANTHES AT THE MANCHESTER SHOW which obtained a first-class commendation. They were exhibited by my employer, John Allen, Esq., of Oldfield Hall, Altrincham, and not by Messrs. Dickson, Brown & Tait, as reported in the Journal of November 23rd, 1882."

— A CAREER of great promise has been brought to a close by the sudden death, which we regret to announce, of Mr. JOHN SADLER, Curator of the Edinburgh Royal Botanic Gardens, which occurred on Saturday last, the 9th inst. Although Mr. Sadler had been unwell for some time nothing serious was apprehended until Thursday last, when for the first time he was unable to leave his bed. The cause of death has been certified as disease of the kidneys. Mr. Sadler was born at Gibbeston, Fifeshire, in 1837, and was consequently only forty-five years of age. His connection with the Royal Botanic Garden commenced in 1854, when, at seventeen years of age, he entered as junior assistant. He eventually became chief assistant to Dr. Balfour, Professor of Botany. This position he continued to hold until 1878, when he was appointed Curator on the death of Mr. McNab. He was also Curator of the new Royal Arboretum for Scotland. He acted for twenty-one years as Secretary to the Edinburgh Botanical Society, and was also Secretary of the Scottish Arboricultural Society for nineteen years, and on his retirement from these offices was presented with a gold watch and appendages, and a purse of a hundred sovereigns; also with a timepiece bearing a Latin inscription written by the late Sir Robert Christison, Bart., and a purse containing seventy-one sovereigns. He was a Conncillor of the Royal Physical and the Royal Caledonian Horticultural Societies; President of the Edinburgh Fungus Club; a member of the Scottish Alpine Botanical Club, and Edinburgh Naturalists' Field Club. He was examiner in botany to the Edinburgh University Local Examination, and also for many years lecturer on botany in the Royal High School of Edinburgh. In 1869 Mr. Sadler was awarded the Neill prize of £50 by the Royal Caledonian Horticultural Society. Added to his industry and ability Mr. Sadler possessed an urbanity of demeanour which won for him hosts of friends, and his loss is deeply mourned by all who knew him. He leaves a widow and seven children, with whom much sympathy is felt in their great bereavement.

— A CORRESPONDENT, "REFULGENS," writes as follows on BUSH CHRYSANTHEMUMS AT LIVERPOOL:—"It is evident to anyone visiting the Chrysanthemum Show at Liverpool that the strong point of culture in the neighbourhood is the production of incurved blooms and closely trained specimen Pompons. I was surprised to see such poor examples grown and shown as bushes. They were the more conspicuous to me after seeing the fine plants that have been staged at Manchester during the past two or three years. The Manchester plants display a very high standard of cultivation. They do not average 3 feet in height, and are furnished with bold green foliage to the base, and each shoot terminates with a large well-formed flower that would not disgrace an exhibition stand of cut blooms. I hope this hint may induce the exhibitors of bush plants in Liverpool to exert themselves to grow and show these plants in creditable condition, so that this portion of their exhibition may not be the weakest feature as it has been during the past two years." [Our correspondent should show them how to do it, as he is a successful exhibitor.]

— A CORRESPONDENT writes:—"PHALÆNOPSIS AMABILIS and P. SCHILLERIANA are quite at home and growing splendidly on blocks of wood in the stove at Wyncote, Allerton, under the charge of Mr. W. Mease. The pieces of wood are about 1 foot in circumference and about 18 inches high, and are stood on the trelliswork over a tank of water. The plants have been placed on the top of the wood with a little sphagnum moss, which is growing freely, and the roots are clinging to the wood, and could not possibly be doing better in any other position. The foliage is remarkably fine, and the flower spikes conspicuous for their strength."

— It will be useful to record the names of the SYNONYMOUS ROSES bracketed in the National Rose Society's catalogue, and

concerning which it was resolved at the annual meeting (see page 555) that only one of those too-much-alike varieties would be admitted in stands exhibited at the shows of the National Society, or those of Societies affiliated with them. The varieties are as follows:—*Hybrid Perpetuals*—Charles Lefebvre, Marguerite Brassac, and Paul Jamain; Duchesse de Caylus and Penelope Mayo; Eugénie Verdier and Marie Finger; Maréchal Vaillant and Avocat Duvivier; Marie Rady and Comtesse de Choiseuil; Maurice Bernardin, Exposition de Brie, Ferdinand de Lesseps, and Sir Garnet Wolseley; Monsieur Boncenne and Baron de Bonstettin; Prince Camille de Rohan and La Rosière. *Teas and Noisettes*—Adam and President; Chromatella and Cloth of Gold; Devoniensis and Climbing Devoniensis; Madame Bravy, Alba Rosea, Josephine Malton, and Madame de Sertot.

— ON the 11th inst. a meeting of the members of the DUNDEE HORTICULTURAL SOCIETY was held to consider the proposal in reference to holding an INTERNATIONAL SHOW in 1884. Provost Moncur presided, and there was a good attendance. It was stated that a number of gentlemen had guaranteed a fund to the amount of £125, which it was thought could be easily doubled, and it was agreed that not less than £1000 should be given in prize money. The proposition was duly seconded, and carried unanimously. We trust the project will be successfully carried out.

— A CORRESPONDENT has sent us three fruits of GENERAL GARFIELD TOMATO of enormous size and very ugly, not with the object of recommending the variety, however, but to show that outdoor-grown fruits approaching ripeness on the eve of winter will ripen when cut and hung in a warm room. He had preserved many bunches in this manner, and has now a good supply of Tomatoes. Those sent to us a fortnight ago have changed to a much brighter scarlet colour in our office, and they are of fair quality. This variety is described as requiring too much room, and is not sufficiently prolific for many cultivators.

— MR. G. J. SYMONS, F.R.S., 62, Camden Square, London N.W., requests us to publish the following note on BRITISH RAINFALL:—"I am just preparing to issue to all the observers of rainfall known to me blank forms for the entry of their records for the year shortly about to close. This staff now exceeds two thousand; but still, as they are not unfrequently rather clustered, there are many parts of the country where additional records are needed. I have no doubt that records are already kept in many places unknown to me, and I shall be glad if you will allow me to invite communications from anyone who has kept an accurate record, and to supply either those already observing or contemplating doing so with a copy of the rules adopted by British observers, and with all necessary blank forms—all, I may perhaps as well add, free of charge, as our greatest requirements are ample and accurate records." We shall be glad if those of our readers who are able to do so will co-operate with Mr. Symons in the work in which he has been so long, industriously, and usefully engaged.

— RELATIVE to TABLE PLANTS at the Brighton Aquarium Show, "AN OLD DECORATOR" writes:—"I believe it was quite as great a surprise to your correspondent to find himself placed first as it was to many others who visited the Show, numbers of whom expressed the opinion as published by your reporter. As to the attempted disparagement of the second-prize collection, I can say, after many years' experience in floral and table decorations, they were just the size I should select, as I should be extremely puzzled what to do with the very small plants staged by your correspondent." Another correspondent says the remarks in our report were quite justified, and our reporter assures us that the dissent of several persons against the awards were expressed very forcibly, while he "put the matter in the mildest possible form."

— RELATIVE to the WEIGHTS OF PEARS, it may be interesting to some of our readers to state that in the autumn of 1879 half a dozen Pitmaston Duchesse Pear trees in 9-inch pots were purchased, and grown on in the same pots under the care of Mr. William Bremner, gardener to Miss Wrigley, Wansfell, Windermere. There was a good crop, the three heaviest weighing 29½, 26½, and 24½ ozs. respectively.

— IN reference to MANURE FOR CHRYSANTHEMUMS, "B." writes:—"Last year I wanted a large supply of flowers; the pots were crammed with roots, and in order to carry them over the flowering season a mixture of manure and loam was applied to the surface of the soil. A little sulphate of ammonia was dissolved in the water given to them. This season similar treatment has been given the plants, and I am highly pleased with the results. In a root-crammed soil, such as that occupied by free-rooting plants, there is nothing fresh left for the roots to take to. The slight surface-dressing I imagine supplies this want to some extent, and to the benefit of the plant. With regard to a good late white I would be glad to have advice. We have had a bountiful supply of Elaine, and a later batch of the same to last till Christmas. Just now Fair Maid of Guernsey and Fleur de Marie are commencing to unfold their earliest blooms. Both, however, possess faults; the former not being so pure in the white as desired, and the latter wanting in the quality of floriferousness. Does anyone know a late variety with the good qualities of Elaine? I am glad to see La Nympe coming into notice. I recommended it highly a few years ago for furnishing purposes. Julia Lagravère is another kind well worth attention to the burdened flower-producer. Where a bronzy hue is liked, as it often is by ladies, General Bainbridge should be grown as the best. This kind is very productive of side shoots, which under good cultivation afford good blooms."

— "J. H. T." writes that "when being shown through the very fine and well-managed gardens at Knowsley Hall I was quite delighted with a very fine specimen of that grand old plant, LUCULIA GRATISSIMA, planted out against the back wall of a conservatory, covering a space of about 10 square feet with upwards of a hundred of its rose-coloured large terminal cymes of fragrant flowers."

— THE WEATHER IN THE METROPOLITAN DISTRICT has been quite of a wintery character during the past week. There have been no such falls of snow as have occurred over a wide extent of the country; indeed, the ground has scarcely been covered, and then only for an hour or two on the 6th inst., the greater quantity melting as it fell. Fogs have been prevalent, and sufficiently dense and prolonged to do considerable injury to Orchid and other flowers, and the ground has been hard with frost. Yet the mercury of the thermometer has not fallen below 22°, or 10° below freezing; but this occurring on several consecutive nights, and no thaw following during the day, has quite put a stop to planting and ground work generally, and much of this work remains to be completed. The weather yesterday (Wednesday) was much milder.

— "J. H." writes on STRAWBERRIES IN DECEMBER:—"At Chalcot House Gardens, Westbury, there is at the present time in one of the houses the best crop of ripe Strawberries of Vicomtesse Héricart de Thury it has ever been my good fortune to see at this time of the year. The batch consists of several dozens of plants growing in 7-inch pots, each plant carrying from thirty to fifty fruits in different stages of development. Those I had the pleasure of tasting were of good flavour and fair size, the largest weighing nearly half an ounce each. The plants were forced in the spring, and after having had a rest of a few weeks were shaken out and repotted in good turfy loam and well-decomposed manure, nothing further being required afterwards other than giving water when

necessary. The highly satisfactory results obtained reflect great credit on Mr. Davies the gardener."

— AT the next meeting of the METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday the 20th instant, at 7 P.M., the following papers will be read:—"Popular Weather Prognostics," by the Hon. R. Abrcromby, F.M.S., and M. Marriott, F.M.S.; "Report on the Phenological Observations for 1882," by the Rev. T. A. Preston, M.A., F.M.S. Mr. J. S. Dyason, F.M.S., will exhibit (1) a series of typical clouds in monochrome, and (2) a series of sketches of clouds in colour made in June, July, and August, 1882. As the list of officers and Council for the year 1883 will be prepared at the next Council meeting, it is requested that those Fellows who wish to suggest names for the new Council will send them in before the 20th instant.

CHRYSANTHEMUM KING OF THE CRIMSONS.

ALTHOUGH certificated a few weeks ago this is not a new variety as many suppose it to be. It has been in the neighbourhood of Liverpool probably about fifteen years, and I have known it for at least a dozen years. It is a handsome dark reflexed variety that might have been lost had it not been brought to the front this year. It has not been very largely grown about Liverpool during the past few years on account of the rage for incurved varieties, and very few collections include it at the present time, though undoubtedly it is one of the richest and best in cultivation for the conservatory and general decorative purposes.—W. BARDNEY.

YOUR editorial criticism on this flower on page 519 reminds me of the reply of the pert young lady in *Punch*, who when told to call a black beetle a cockroach because it was neither black nor a beetle, replied, "Oh! it is neither a cock nor a roach." However, let me say I did not write without authority, for in the catalogue of Mr. Davis of Camberwell, a large metropolitan vendor of Chrysanthemums, I find it classed under the new Japanese varieties with this observation:—"This magnificent variety, although not new, has on account of its scarceness been seldom offered to the public, although it is well known to the northern growers. In habit of growth and shape of flower it is similar to Julia Lagravère but three times the size, and the colour a most brilliant crimson—real crimson. It is called a reflexed flower, but it is quite as much a Japanese as Elaine, Triomphe de Nord, and many others highly recommended."—D., *Deal*.

[It would be interesting to know how long Mr. Davis has grown King of the Crimson, and whether he has produced blooms that warrant him in saying the variety is "quite as much a Japanese as Elaine and Triomphe de Nord." Good blooms of the varieties mentioned are out of place in a stand of reflexed flowers, while King of the Crimson has never been included in a stand of Japanese, nor, we venture to say, never will be without spoiling its effect or risking its disqualification. One of the finest blooms of the variety in question that has been exhibited was staged by Mr. Molyneux at Kingston in his first-prize stand of reflexed varieties. We grew King of the Crimson eighteen years ago, and that is our authority for saying it is not new, and the same experience has taught us it is a true reflexed and not a Japanese variety; indeed, we shall not be surprised to hear that it was raised long before the Japanese forms were known in this country.]

MUSCAT OF ALEXANDRIA GRAPES.

I WAS much interested with Mr. Bardney's account of the Muscats at Knowsley Hall. From what he says of them they must be very fine, and when in such grand condition will be a source of pleasure to all who are fortunate enough to see them.

A house of Muscats finished as these at Knowsley is something to be proud of at any time, and more especially in these times of comparatively sunless summers.

I can, however, hardly agree with Mr. Bardney when he suggests that the success attained with these Muscats is to be attributed to the roots being nearly all in sand. Of course nothing is better for making roots multiply, but if nothing else is supplied than sand poor results will assuredly follow. When spread on the surface of a border of good strong material sand is very beneficial, for if some of the roots are laid in it they rapidly increase in numbers, and then take possession of the loam, &c., that forms the border.

I have sometimes seen Muscats treated in the way Mr. Bardney refers to in regard to removing leaves to allow the sun to shine directly on the bunches. Such treatment often results in one side of the bunch being scorched into a brownish colour, and some of the berries reduced to raisins. I have invariably found that Muscats colour well under a considerable shade of leaves when not too heavily cropped, kept free from spider, given a good amount of heat, and fair ventilation.

The cool treatment has failed with me several times, and I have learned to consider it "penny wise and pound foolish." The difference between a house of Muscats such as Mr. Bardney describes, and one wherein the majority of the bunches have a green appearance, and shrivelling and shanking abound, is so great that any extra attention and outlay are amply repaid when a thoroughly finished crop is secured.—VITIS.

NORTHWARDS—KEIR.

Now that the autumn shows are over, and there is somewhat less pressure on the space of the Journal, I will endeavour to record a few memories of the past that were impressed during a pleasant week in September among the hills and gardens of "bonnie Scotland."

Leaving the great show at Edinburgh my first resting place was, through the kindness of Lady Susan Melville, in the old home of the Stirlings. The Stirlings of Keir date back from an early period. History records that in the reign of James VI. the Laird of Keir, Sir Archibald Stirling, had charge of the young Prince Henry in Stirling Castle, and in the reign of Charles I. and II. Sir George Stirling took an active part in those turbulent times, fighting as a Royalist under the Duke of Montrose. The last owner of Keir was Sir William Stirling-Maxwell, Bart., who assumed the latter name on succeeding to the Pollock estate. He died in Venice in 1878, but left behind him a monument of his accomplishments in literature and his taste in art in the library and chaste adornments of the mansion, with the beautiful and skilfully planted grounds surrounding. Three years previous to his decease his first wife, Lady Anna Maria, met with a dreadful accident by fire, which terminated fatally, and her two sons were placed under the guardianship of her sister, the distinguished lady above mentioned; the present Baronet, Sir John, being now about sixteen years of age. Under these circumstances Keir, as regards the high keeping of the grounds, is naturally not quite the same as when the late Baronet, who would appear to have made their planting and adornment a prominent occupation of his life, provided so liberally for the maintenance of every department of this fine estate. But let no one imagine that the pleasure grounds of some 60 acres, and containing thousands of Conifers, have run wild, or that the gardens are no longer enjoyable. On the contrary, a fair allowance is granted by the trustees to Mr. Russell, the gardener, whose twenty years of supervision have afforded him that experience which enables him to apply the means to the best possible advantage; and Keir is enjoyable still, and enjoyed by great numbers of visitors, for the grounds are generously opened to the public on one or two days a week throughout the summer; and the word "Salve," cut in the stonework over the gates, greets all comers with a "welcome"—this, it may be stated, in the unfortunate event of there being any readers less learned than the writer, being the English equivalent of the Latin inscription.

To describe in detail the various features of the grounds were impossible; they are far too numerous, diversified, and intricate, while the number of specimens, Conifers especially, almost bewilders; therefore nothing more will be attempted than a portrayal of the general character of the surroundings of this ancient Scottish home.

Only a mind at once fertile and original could have conceived the plans, and the possession of wealth executed them, that have resulted in work so prominent and unlike what is usually seen in gardens. *Keir* or *Caer* signifies a fort or castle, and this indicates that the position is elevated. In one respect it is, as it overlooks the Carse of Lecrop and Stirling; but higher still are the adjacent Ochils, notably Bencluch and Demyat, whose purple summits reach the clouds, while Ben Lomond, when thrown in relief by the setting sun, is seen towering majestically in the far-off distance. But the mansion though high is not on a lofty craig; it is reached by an easy gradient from the Bridge of Allan, about two miles distant. Some portions of the grounds quite close to the house are high above it, and it is this bold rugged surface-configuration that has afforded scope for the ingenuity that has been exercised by Sir William in contributing to their attractiveness and accessibility.

The first feature that arrests the attention of the visitor is the wealth of Conifers—Araucarias in hundreds, Irish Yews like sombre sentinels in thousands, Cupresses not only surrounding the

house as if with a forest, but trained up the building, producing an unique effect. The next feature is the masonry—admirably executed balustrades, with sunken paths flanked with Ivy-covered walls, terraces, vases, tunnels, bridges, and flights of steps leading from the lower to the higher portions of the grounds; yet there is nothing incongruous, as every part appears to have been designed for an useful purpose, and executed ornamentally, while the numerous trees, shrub-clad rocks, and evergreen hedges more than counterbalance the cold effect that masses of stonework too often produce. Then fine glades, avenues, and groves of Conifers with noble timber trees and charming vistas abound; indeed, at every point and turn there is something to admire.

The engraving shows Keir when the trees near the mansion were younger than they are now; but the Cypress-striped walls are apparent. The plants, now trees, employed, were brought home by Sir William when travelling in the East. On that account the species has been called *Cupressus orientalis*. This, however, is a fancy term, the true name being doubtless *C. sempervirens*, *Linn.*, or *C. fastigiata* of De Candolle—the Upright Roman Cypress, found in the south of Europe and Asia Minor. The specimens under notice are from 25 to 30 feet high, 18 inches in diameter at the base, tapering to the top. Being slightly cut occasionally they are close, round, and smooth, and, planted 4 to 5 feet apart on each side of the windows, have a remarkable effect.

The lawn in front of the house is crowded with splendid tapering specimens 40 to 50 feet high of the fastigate form of *C. macrocarpa* and *C. Lawsoniana*; indeed, they have obstructed the view so completely that it has been found necessary to remove some of them. The horizontal form, *C. Lambertiana*, is also represented, but not so numerous. This plantation of Cupresses extends round the western side of the building, and past it for a long distance, forming also a beautiful sheltering screen for the flower garden; many handsome specimens of *Thuopsis*, *Junipers*, *Araucarias*, and other choice lawn ornaments being interspersed with the Cupresses, a vase here and there of scarlet *Pelargoniums* appearing to have a more than usually bright effect in contrast with the great depth of surrounding foliage, and imparting cheerfulness to what would otherwise be a rather sombre picture.

On the opposite or eastern side of the flower garden is a wall 12 or 14 feet high and 400 or 500 feet long, covered from base to summit with *Cotoneaster microphylla*, not closely clinging to the surface, but in semi-wild luxuriance, the lower branches falling and rooting in the gravel walk, and affording young plants by the thousand. This wall supports the higher ground, and above the top of it runs an embowered hedge of Portugal Laurel, which has a striking effect. In the lawn space thus enclosed in a frame of deepest green there is not much danger of having flower beds too bright. These beds are simply four rows of large circles, two on each side of the lawn, linked together, and chiefly fitted with the brilliant *Tropæolum Vesuvius*, a small yellow floriferous *Viola*, and an effective dwarf *Ageratum Queen Victoria*. The alternations of the three colours as viewed from the mansion had a most pleasing effect, and not at all too bright for the position.

Near the end of the flower garden, distant from the mansion, is a bowling-green and tennis-ground of a decidedly out-of-the-way kind, and singularly striking. It is simply an oblong dish of considerable magnitude, the sloping sides of lawn being 8 or 10 feet deep. In this there is nothing remarkable; but along the top of what may be termed the upper terrace is a hedge of Golden Queen Holly cut square to the height of about 4 feet, and at intervals of about 6 feet the growth has been permitted to extend, and this in turn has been cut to form spires, square in form to correspond with the base, and tapering in a point some 10 feet high. Parallel with this extraordinary hedge, on a lower terrace, is a similar hedge of Yews. The appearance of these spires of foliage—gold and deepest green—arranged with almost mathematical precision is remarkable, beautiful alike in colour and stateliness, the general effect of the enclosure viewed from either above or below being probably unequalled in its way by any lawn-tennis ground in Great Britain.

We have yet to ascend to the higher grounds. Returning to the mansion two grand old centenarians attract notice—a Sycamore and Chestnut. These are reputed to be some four hundred years old, and are supposed to have been planted at the time of the erection of the mansion. They are still healthy and cared for, the great gaunt limbs of the former being supported by iron bands. But we pass on. The upper grounds are reached by flights of steps conducted up the face of rugged natural rocks, amongst which *Araucarias* and *Cupressus luxuriata* and spring from a groundwork of trailing plants and Ferns. Near the foot of the steps are specimens of *Cupressus Lawsoniana fastigiata*, planted by the Queen of Holland and the late Lord Beaconsfield, and there

are other memorial trees planted by learned and notable visitors to Keir. Reaching the summit a straight terrace-walk and avenue of Irish Yews extends northwards, with an embasured hedge on the left as a dividing line between the upper and lower portions of the pleasure grounds. Parallel with this, but still higher, is another walk of a similar character, with at intervals memorial urns and entablatures in memory of departed friends. The upper walk leads to the kitchen garden, which is entered by massive gates from original designs by Sir William, the lower conducting to a range of glass, 300 feet long, erected against the kitchen garden wall, and facing the pleasure grounds. From here is, or was, seen what was for years regarded by many as the pride of Keir, a grand old *Araucaria*, a noble specimen about 50 feet high, excellently furnished and very handsome; but it fell a prey to the ruthless storms of the past few years, having been uprooted, laid low, and replanted three times—its fate was sealed, and it is probably now removed to give place to a younger specimen, of which there are plenty of beautiful examples in the grounds. Before another is planted the rock will be excavated to afford a

greater depth of soil, and had this been done originally the noble tree referred to would have doubtless yet been standing where it has stood so long and been so greatly admired. In this part of the grounds, too, which is of a less formal character, some fine *Larches* are prized, not so much for their size, which, however, is considerable, but because they are considered to rank with the oldest in Scotland. The oldest, as being the first introduced, are at Dunkeld, and the "story goes" that when the original trees reached their destination it was found a few were missing, and as the consignment passed Keir it is supposed that by accident or "otherwise" the missing trees found refuge there, and there they remain. Be this as it may, they are noble specimens, and worthy of being prized by the family.

"Vistas" have been mentioned as a feature of Keir. There are several worth note, but only one can be particularised. The rock on which Stirling Castle stands rises rugged and bold out of the centre of a low flat plain, and this commanding old fortress is an historical landmark, of which there are so many, but none more pronounced, in this romantic district. Well, from the umbrageous



FIG. 93.—KEIR HOUSE.

recesses of the Keir pleasure grounds a tunnel has been cut through the trees, pointing directly to and on the same level with Stirling Castle. This is the terminal point—nothing else is seen, nor nothing else is wanted, for no terrestrial telescopic view can be imagined more interesting. "But why mention it?" some may say, "there is only *one* Stirling Castle, and the view cannot be imitated or reproduced!" True, but the question suggests itself—Are there not other hidden objects, historic or picturesque, that with a little thought and labour might be revealed and brought within the range of vision, adding greatly to the interest of the site from which they might be viewed? There are many, but not thought of. Let one example be given; it may perhaps be called a child of Keir, for it is scarcely conceivable that any other spectacle could have led to it. Most persons have heard of Lincoln Cathedral, and those who have seen it will grant there are few edifices of the kind that are externally more imposing. Four miles from Lincoln is the residence of Mr. Alexander Leslie Melville, a near relative of Lady Susan Melville, this residence being enclosed with plantations, but on or about the level with the grand old building mentioned. From the front doorstep of Longhills Mr. Melville has produced what, to an artist, is worth a journey to see; for he will see in the far distance, as if through

a living telescope—and he will see nothing else—Lincoln Cathedral clear and well defined. It is a charming picture, nothing on the estate being half so attractive to visitors, and yet it has cost little to produce. The trees were at one end, the building at the other, and only the woodman's axe and the artist's eye were needed to do what has been done so well; yet for years this matter was never thought of, and possibly never would have been but for the example referred to by Sir William Stirling Maxwell. The Keir and Stirling Castle vista, therefore, is worth mentioning, as, peradventure, it may induce others to consider if something of the same kind cannot be effected, and thus make some of the beautiful homes of Albion more admired still by their owners, guests, and visitors. Let the matter be pondered over by those who are interested in striking landscape effects, and who are seeking to reveal features of interest and beauty near, yet hidden by something that could with advantage be removed.

"Avenues," too, have been mentioned. There are *Deodar* avenues, mixed *Pine* avenues, *Cypress* avenues that have not yet been alluded to at Keir; nor can they be more than mentioned. There are specimens that merit notice that must be passed—*Pinus monticola* 40 to 50 feet high; *P. insignis*, one of the few examples of mature age that have survived the late severe winters

of the north; *Abies Morinda* 30 to 40 feet, with its elegant weeping branches; *A. Webbiana*, bearing its grand purple cones, but the growths injured, nearly always, by spring frosts, which spoil the symmetry of the tree; and in similar condition is *A. Pindrow*, the Indian Silver Fir. These must be passed, but a curving avenue of *Lawson's Cypress* may be followed, because it leads to something worth notice near another entrance to the grounds. On each side of the gates here Irish Yews were planted several years ago, and are now amongst the most striking ornaments of the pleasure grounds. They are 10 to 12 feet high, but only the lower portion to the height of 3 or 4 feet are of the typical form, the remaining 5 or 6 feet being the Golden Yew in splendid colours, and by a little timely pinching the fastigate character of the Irish Yew is maintained throughout. Very little trimming, however, is needed for effecting this, as the stock appears to have a decided influence on the scion or grafted portion, and renders its growth conspicuously upright and close. These Yews, like golden pillars on dark pedestals, are splendid objects. They were obtained from the continent, where they are prepared in larger numbers than in the nurseries of this country. In Mr. Charles Van Geert's interesting grounds at Calmpthout, a few miles from Antwerp, numbers of Irish Yews are grafted with various golden forms, some upright, some weeping; and years hence when they have developed their character they will be admired wherever they are, as these noteworthy Keir examples are admired now, and it seems almost a pity there are not more of them.

Many other fine examples of various Conifers must be passed, and the concluding note on the pleasure grounds have reference to a characteristic example of the taste of Sir William in the disposition of the grounds. In front of the Yew Temple is the following motto in Box edging:—"Homo quasi flos egreditur et conteritur," which may be freely interpreted—"Man like a flower passes away and is spent." The letters are large, 2 or 3 feet high, and clear, sloping outwards, forming the outer rim of a large circle. Mottoes of the same character abound at Keir indoors as well as out, especially round the cornices of the rooms; but these can be no further alluded to here, nor can the Fern dells and cascades, the deep ravines and bowery wilderness walks, and only a line or two can be devoted to the glass structures and kitchen gardens.

In reaching this department to the mansion we pass through a tunnel of masonry—not a mere low narrow archway, where persons must stoop to save their hats and squeeze in passing to guard their elbows from abrasion—but a work of magnitude, through which a load of hay could pass if needed; and the road, if the curve to the left is followed, ascends and twists corkscrew fashion until the higher level of the garden is reached. This is a large walled enclosure. The fruit trees, old and large, on the walls seldom bear; but the late owner prized the trees as trees, caring little whether they produced fruit or not: therefore they had to remain, and in all probability will remain for some time, because he cherished them. Vegetables are grown the same as other vegetables in other gardens, and that remark must suffice, the marginal flower borders containing old-fashioned plants, one of which, because seldom met with, demands notice. The flowers are so singular and attractive that everyone who sees it wants a spike and a slip: but for particulars see the figure of *Linaria vulgaris* var. *Peloria* on page 543.

A span-roofed range 200 feet long is devoted to plants, but they are not so much prized as formerly, nor is there the same time devoted to them; but there are several good Orchids and Ferns, with other plants for yielding flowers for cutting. The vinery range, 300 feet long, is, as above stated, outside the garden. During the last few years nearly the whole length has been replanted, and heavy crops of excellent Grapes are now produced. By special desire the Black Hamburgs were obtained from the Hampton Court Vine; but one original Vine, now some eighty years old, was retained in the house. On the young Vines fruiting it was found that the Grapes were not nearly so rich as those of the "old sort;" so some grafts of this were attached to the younger Vines, and on rods of both sorts of the same age and side by side there is a marked difference in the quality of the fruit, the old Keir variety being far superior to the new comer both in firmness of flesh and richness of flavour. Whether its superiority will be maintained under other conditions remains to be proved, and with this object a young Vine has been sent to the Royal Horticultural Society's gardens at Chiswick, where it will be compared with other varieties of the Black Hamburg that are there established. It only remains to say that old Peach trees in this range bear heavy crops, that young trees of newer varieties are planted, and a grand plant of *Gloire de Dijon* Rose on the back wall of one of the houses gives thousands of blooms annually; and that

the cordial welcome accorded me by Lady Susan Melville and the young laird, with the extreme kindness of the trusted persons in charge of the establishment, Mrs. Cairns, Mr. Sadler, and Mr. Russell, rendered my visit peculiarly enjoyable, and the recollection of it now constitutes one of the brightest of the sunny memories of the year.—J. WRIGHT.

LIBONIA FLORIBUNDA.

THIS is one of the most serviceable decorative plants for this season of the year that we have in cultivation. Anyone having an ordinary forcing pit or hotbed to enable them to strike the cuttings early in the spring, with a cold frame to grow them in through the summer months, can have useful plants of one summer's growth fit for room-decoration during the dull months of winter. The cuttings root freely, and the plants make rapid growth when properly attended to.

The compost suitable to strike cuttings in is loam, peat, and silver sand in about equal proportions, and the same compost will do equally well to grow them in afterwards. We have plants at present of two years' growth, which are flowering most profusely, and are admired by all who see them. This plant is well known, but often very badly managed by being kept in too high a temperature. Our best plants at the present time were out of doors on a bed of ashes all the past summer.—LEADENHAM.

ROYAL HORTICULTURAL SOCIETY. 1882

DECEMBER 12TH.

THE last meeting of the year was not largely attended either by members of the Committees or by exhibitors; and with the exception of the plants from Holloway, the flowers from Swanley, and the Apples from Elvaston there was comparatively little of special note.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. Three bunches of Gros Colman Grapes were sent from Chiswick, the berries large and the colour good. They were brought to show the difference in flavour from different houses, those from the conservatory being extremely good, while some bunches from another house were much inferior in flavour. A cultural commendation was awarded to Mr. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, for fine handsome bunches of Black Alicante Grapes extremely well coloured; also two good Pine Apples, Lord Carrington and Smooth Cayenne, large, even, and well ripened. A vote of thanks was awarded to Mr. Mann, gardener, St. Vincent's, Grantham, for a dozen dishes of Apples in very good condition; Warner's King, Blenheim Pippin, Worcester Pearmain, Lord Lennox, Pike's Pearmain, and Bramley's Seedling being particularly fine. Two seedling Apples were also sent by Mr. Mann, one named Grantonian and the other Baron Wolseley; the latter considered not superior to others, the former to be kept at Chiswick and brought again in April.

A bronze medal was awarded to Mr. Goodacre, The Gardens, Elvaston Castle, Derby, for a collection of about eighty dishes of Apples comprising a large number of varieties, the fruit mostly in excellent condition and of fair size. Very notable were Nelson's Glory, Golden Noble, Blenheim Pippin, Alfriston, Waltham Seedling, Lady Henniker, Court Pendu Plat, Hollandbury, Warner's King, and Ecklinville Seedling. Mr. Gilbert, The Gardens, Burghley, Stamford, sent a dish of a small Apple, which was determined to be the Early Nonpareil. Messrs. J. Dickson & Sons, Newton Nurseries, Chester, exhibited two seedling Apples named Favourite and Masterpiece, both of which were passed. Mr. H. E. Eckford, The Gardens, Boreatton Park, Shrewsbury, sent six dishes of seedling Potatoes, concerning which no opinion was expressed. Messrs. Thomas Laxton and Sons, Bedford, sent some seedling Apples; one, a cross between Nonpareil and Stamford Pippin, being considered promising. The others were passed.

At the conclusion of the meeting Mr. John Lec proposed a vote of thanks to Mr. H. J. Veitch for his services as Chairman during the past year.

Messrs. James Carter & Co., High Holborn, offered prizes for a collection of twelve varieties of vegetables, three competitors appearing and staging very creditable examples. Mr. H. Marriott, Prospect House, Skerbeck, Boston, took the lead with clean specimens of Golden Globe Onions, Carentan Leeks, Veitch's Autumn Giant Cucumbers, Maltese Parsnips, Improved Magnum Bonum Potatoes, Perfection Brussels Sprouts, Silver Ball Onions, Major Clarke's Red Celery, Long Surrey Carrots, Golden Queen Onions, Perfection Beet, and Jersey Lily Turnips. Mr. E. Summers, gardener to the Earl of Scarborough, Sandbeck Park, Rotherham, was awarded the second prize for a good collection.

FLORAL COMMITTEE.—Mr. B. S. Williams in the chair. A vote of thanks was accorded to Messrs. H. Cannell & Sons, Swanley, for very beautiful and tastefully arranged collections of single and double Pelargoniums, Salvias, and Heliotropes. A basket of the new double blush *Bouvardia* President Garfield was also shown, the blooms being similar to Alfred Neuner in form, but of a delicate pale pink hue.

Among the double Zonal Pelargoniums the following were very notable :—General Campinon, very dark scarlet ; Lord Mayor, bright pink ; Gambetta, rich scarlet ; La Quintinie, white ; and Henri Cannell, purplish crimson. The best of the single varieties were W. B. Miller, deep scarlet ; Eureka, white ; Eurydice, purple-pink, white centre ; Guinea, very brilliant scarlet ; Dr. Orton, intensely dark scarlet ; Kate Farmer, salmon scarlet, very large ; Constance, pale pink ; and K. Greenaway, good pink, white centre. The Salvias included the brilliant blue S. Pitcheri, the scarlet S. splendens Bruantii, the mauve S. leucantha, the purple S. Bethelli, and the scarlet and white-striped S. Mons. Issanchou. A vote of thanks was accorded to Mr. James Waddell, Shenley House, Stony Stratford, for two plants of a sweet-scented variety of *Odontoglossum Alexandræ*.

Mr. B. S. Williams, Upper Holloway, was awarded a silver medal for extensive groups of Primulas and Cyclamens, representing his special strains. Red and white Primulas, with white, rose, purple, and crimson Cyclamens, were shown in very satisfactory condition ; the plants healthy, the flowers large, and the colours bright and clear. A vote of thanks was accorded to Mr. Todman, gardener to G. Connell, Esq., Bushy Down, Tooting Common, for a collection of seedling Pelargonium flowers and two hybrid Azaleas. Of the latter, one named Mrs. Tom Corbett had white flowers, larger than the *amœna* type, but smaller than the indica varieties, the President Goodheart having flowers of similar form and size, but bright red in colour. As early-flowering varieties requiring very little forcing these are very useful.

First-class certificates were awarded to the following plants :—

Chrysanthemum Duchess of Albany (Jackson & Son).—A Japanese variety, with narrow irregularly cut florets, bronzy yellow, blooms full and of great size.

Chrysanthemum Ceres (Jackson & Son).—Also a Japanese variety, with white florets something like Elaine, but much larger and the bloom looser.

Acroclinium roseum flore-pleno (J. C. Schmidt, Erfurt).—A double form of this well-known plant, of a most delicate soft rosy hue.

Acroclinium album flore-pleno (Schmidt).—Similar to the above, but the blooms are pure white.

Pescatorea Vervaeii (Vervae & Co., Ghent).—An unattractive Orchid, with flowers of moderate size, the sepals and petals white, tipped with purple ; the lip of a similar purple colour.

Cosmos bipinnatus var. parviflorus (Royal Horticultural Society).—The flowers individually are not so attractive as the species, being of a rosy purple tint ; but the chief merit of the plant consists in its floriferousness, which renders it useful for decorative purposes. The plants were shown in pots, and a second-class certificate was awarded for it.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker, K.C.S.I., in the chair. Some discussion took place with reference to the reports on losses of plants during severe winters, compiled by the Secretary. Much regret was felt at the reply from the Council that the Society is unable to publish it, as great disappointment has been expressed by many of those who, at considerable trouble and pains, had contributed to the reports.

Fasciation.—Dr. Masters exhibited a specimen of fasciated flower heads of *Helichrysum*, or "Everlastings." He also exhibited from Mr. Veitch a flowering stem of *Eucharis* provided with a leafy bract—a very unusual condition. This being the last meeting of the year a vote of thanks was offered by Mr. MacLachlan, and seconded by Mr. Grote, to the Chairman, which was responded to by Sir J. D. Hooker.

LECTURE.—The Rev. G. Henslow illustrated by several examples the power of plants to render themselves attractive with bright colours independently of, or in addition to, the corolla. This was principally attained by means of the bracts. A beautiful series of Salvias, exhibited by Mr. Cannell, showed how the bracts and calyx, both being unusually green in flowers, could become brilliantly coloured, and so intensify the beauty of the spray. An *Acroclinium*, a kind of "Everlasting" from West Australia, showed how the bracts of the involucre surrounding the florets could mimic a true flower. In this plant the chaffy scales interspersed amongst the florets contributed to that same effect. Bracts might thus either enhance the general colouring of an inflorescence, or actually assume the appearance of a flower. Mr. Henslow further illustrated this by dried specimens and drawings of *Poinsettia*, *Lycasteria*, *Epiphyllum* on the one hand, while *Bupleurum*, *Cornus*, *Darwinia*, and *Euphorbia jacquiniæfolia* were exact imitations of true flowers on the other.

CELERY IN WINTER AND SPRING.

WHERE a regular and good supply of vegetables has to be maintained throughout the winter Celery must be grown in quantity for daily use, and during the next three or four months it will require some attention to keep it in a sound fresh state. It is a well-known fact that there are innumerable rows of Celery destroyed every winter through damp and frost, but the chief cause of this is having the plants too forward. In many instances the seed is sown in April and May, the plants are turned out in June and July. By October they are fully grown, then decay commences with the first wet or frost. I have nothing, however, to say against having Celery ready in autumn, but it is through

expecting the autumn stock to keep up the supply throughout the winter and spring that the mistake is made. Winter and spring crops should be grown specially for those seasons. The seed for these should not be sown early, as if good plants are placed in the trenches in August that is quite early enough. Earthing up those late crops should never be done until the plants have made considerable progress, as one of the chief sources of decay in winter Celery is earthing up too much, and at this season it is much better to use sand or ashes for this purpose than the soil.

Apart from growing winter and spring Celery in trenches, equally good and sounder heads may be secured by planting out on the level ground and never disturbing the earth around them, but blanch the stems by placing refuse ashes between them. One of the finest pieces of winter Celery I have seen was treated in this way, and the blanching material was chiefly shavings and mortar rubbish. The shavings protected the plants from the frost, and there was not one in fifty decayed. When anything of this kind is used for blanching, or even sand and ashes, it is rarely necessary to add any other protection in severe weather ; and this is an advantage well worth attention, as there is nothing more liable to cause the centres of tender blanched Celery to decay than having the tops covered with straw or fern. Our Celery for autumn use was earthed up finally early in October ; that for using in the new year has just had the last application of ashes placed round it ; and the latest spring plantation has had nothing round it yet, but the growth is robust, and so hardy that severe weather will do it little or no harm. About one month before it is wanted some blanching material will be put about it, and it will then turn out much sounder and better flavoured than if earthed in autumn. Red Celery has always proved better able to resist the weather, and not so liable to become spongy in the stems as the white varieties, and I recommend red Celeries alone for midwinter and spring use.—A KITCHEN GARDENER.

CUNNINGHAMIA SINENSIS.

SIMILARLY to the Araucarias recently noted, *Cunninghamia sinensis* may be considered as a living memento of the earlier ages of the world, and the striking resemblance borne by this Conifer to one species of *Araucaria*, *A. brasiliensis*, has given rise to some confusion which may be easily removed. First as to the names with which this *Cunninghamia* has been doubtfully honoured, and the history of its introduction. Under the cognomen *Pinus lanceolata* we find some of the earliest references to it, one of the most noteworthy being in Aiton's "Hortus Kewensis," where it is recorded that the plant was first received at Kew in 1804 from China, having been introduced by the Directors of the East India Company through Mr. William Kerr. *Belis jaculifolia*, *Cunninghamia lanceolata*, and *Araucaria lanceolata* are some of the other titles which it has received at the hands of different writers, the first generic name being rejected as too much like *Bellis*, and the last name is of garden origin. The accepted generic name was given to "Commemorate the merits of James Cunningham, an excellent observer in his time, by whom this plant was discovered, and in honour of Mr. Allan Cunningham, the very deserving botanist who accompanied Mr. Oxley in his first expedition into the interior of New South Wales, and Captain King in all his voyages of survey of the coasts of New Holland." The specific name formerly adopted (*lanceolata*) referred to the shape of the leaves, while that now accepted (*sinensis*) denotes the native country of the tree.

As already stated, in habit this *Cunninghamia* closely resembles *Araucaria brasiliensis*. The leaves are tapering and 2 or 3 inches long, but they are less rigid than those of the *Araucaria*. The cones, too, are quite distinct, those of the *Cunninghamia* being of a reddish tint, the scales regularly and deeply serrated. It is rather curious that when these were first observed they were considered to be excrescences or galls caused by the attacks of insects. The tree attains a height of 30 to 40 feet in China and Japan, but it is seldom seen so large as that in England ; indeed, for many years it was grown under glass, as too tender to endure exposure in the open air. According to Loudon, however, "in 1816 a plant was turned out into a sheltered part of the pleasure ground at Claremont, where it continued to live without protection, and, though injured more or less by severe winters, it was in 1837 18 feet high, the diameter of the trunk 7 inches, and of the head 16 feet. This height it had not exceeded in 1841 in consequence of the top being frequently broken by heavy falls of snow." In 1828 there were plants of this *Cunninghamia* at Dropmore, then about 10 feet high, having been introduced in 1823 and only slightly protected, as was also *Araucaria imbricata*, which, though believed to be hardy, had not been trusted out of doors without

protection. Plants had also been raised from cuttings and were succeeding well not only at Dropmore but elsewhere, as in Loudon's "Gardener's Magazine" for 1827 Mr. Stewart Murray, Curator of the Glasgow Botanic Gardens, wrote as follows:—"In this garden were two plants of *Cunninghamia lanceolata* 2 to 3 feet high, struck from cuttings several years ago, and although in very luxuriant health, the tops still retained the appearance of a branch which even when tied up to a stake always seemed as if endeavouring to regain its horizontal position. During the winter of 1825 I loosed the top of one from its stake, and fastened it down in quite a horizontal direction. In about six weeks afterwards a very vigorous shoot made its appearance from below the surface of the earth in the pot. When the shoot had attained the height of 8 or 9 inches I cut away the old top entirely, and at this

time the plant is nearly 2 feet high, furnished all round with three tiers of regular horizontal branches. One year after I repeated the experiment upon my other plant, and with similar success."

It is regrettable, however, that few handsome specimens of this Conifer are seen in gardens, and unfortunately severe frosts often greatly injure its appearance, browning the foliage without killing the tree. Still some good examples are included in a few collections, amongst which may be mentioned Dropmore, and the Duke of Hamilton's estate, Brodick Castle, Island of Arran. Rev. David Landsborough informs me that a specimen said to be over twenty-five years old is still living in the last-mentioned garden, and has never been protected, and though browned by the winter of 1880-81 it was not otherwise injured. Quite recently there



Fig. 94.—*CUNNINGHAMIA SINENSIS*.

was also a large tree fully 30 feet high at Aberpergwm, Neath, the seat of Mr. Williams, and several others have been noted in the Journal. Small specimens 6 to 10 feet high are very attractive, and in a sheltered position they are decidedly handsome, the growths assuming a pleasing purplish tint. In pots for conservatories or planted in winter gardens it is well worth a little attention to insure healthy growth. A substantial but not too heavy loam is the best suited for it, and it may be increased either by seeds or cuttings. The engraving (fig. 94) represents a tree of good size, and shows the habit well.

It may be added that *Cunninghamia sinensis* is found in the south of China, and that it is cultivated in Japan, where some specimens have been observed of such a size as almost to lead to the belief that they were natives; however, that appears is not

the case, as wild specimens are not found in Japan now. This is the only species known, as *C. selaginoides* and *C. eupressoides* are now referred to the genus *Athrotaxis*.

In reference to the history of *Araucaria Bidwilli*, which has recently been discussed, Professor Thiselton Dyer writes me as follows:—"The remarks I made with regard to the *Araucaria* in the temperate house at Kew were on the authority of Sir Joseph Hooker, who tells me that he repeatedly heard the story from his father, Sir W. Hooker. There seems to be no doubt that there was a specimen at Syon, but as they could not afford the space for its development that we are able to give it I understand it became unhealthy and was thrown away. We have two trees in the winter garden not very different apparently in age or size. Mr. Smith's letter may refer to one of these and Sir Joseph's anecdote to the

other. The two stories may not, therefore, disagree." I suggested this explanation to Mr. Smith some time since, but he states that there is no doubt the specimen he took there was the first, and that others were not received until some time afterwards.—
L. CASTLE.

NATIONAL ROSE SOCIETY.

ANNUAL GENERAL MEETING.

ON Thursday last, December 7th, twenty-two members of the above Society assembled at the rooms of the Horticultural Club, Ashley's Hotel, Henrietta Street, Covent Garden; and considering the extremely unfavourable weather the muster was uncommonly good, including the following:—Dr. Robert Hogg, Rev. H. H. D'Ombraim (Hon. Sec.), Rev. Alan Cheales, Rev. H. A. Berners, Capt. Christy, E. R. Whitwell, B. R. Cant, Cecil E. Cant, G. W. Piper, Arthur Turner, Charles E. Cuthell, H. H. French, George Paul, E. Wilkins, W. J. Grant, W. Farren, George P. Hawtreay, J. D. Pawle, John Laing, C. F. Hore, H. Appleby, G. Prince, and E. Mawley (Hon. Sec.). Dr. Hogg took the chair at 3 P.M., and the proceedings were commenced by Mr. E. Mawley reading the circular calling the meeting; and on the proposition of the Chairman the minutes of the last annual meeting were taken as read. After Messrs. B. R. Cant and J. D. Pawle had been appointed scrutineers of the ballot for election of officers and Committee the Rev. H. H. D'Ombraim read the following report and financial statement.

IN presenting this Report the Committee have much pleasure in expressing their satisfaction with the progress that has been made by the Society during the past year. The Exhibition held in the conservatory and arcades of the Royal Horticultural Gardens in July besides being, all things considered, the best Rose show which the Society has yet held, was also as regards the number of exhibits unquestionably the largest exhibition of the kind ever seen in this or any other country. The Exhibitions at Bath and Darlington, both of which were attended by a very large number of visitors, were also in every way successful.

The Committee record with pleasure the completion of the Society's "Catalogue of Exhibition Roses." This undertaking, although more arduous and costly than was at first anticipated, will no doubt prove of great service to their members as well as to others interested in Rose culture. In order to show the general approval with which this Catalogue has been received, it need only be stated that the demand for it has been so much larger than had been thought probable that almost all the extra copies printed for sale have been already disposed of.

In the course of the year a question of a somewhat difficult nature was brought before the Committee—viz., as to the meaning of the term "amateur" as used in the Society's schedules. After careful consideration the conclusion was come to, that as it would be almost impossible to draw up any precise definition which would equitably meet every case that might arise, it would therefore be better for the Committee to decide on each case that might come before it upon its own merits. For the guidance of exhibitors they wish it, however, to be clearly understood that in their opinion no person who traffics in either plants or flowers ought to be considered an amateur.

It is a source of much congratulation that the Committee are enabled to announce, that notwithstanding the removal of their principal Exhibition from the Crystal Palace (in the neighbourhood of which they have a large number of subscribers) to South Kensington, the list of members shows a larger increase than in almost any previous year.

Financial Statement.—It will be recollected that the Society commenced the past year with a balance in hand of £97 9s. 4d., and that it was thought likely that this amount would be very considerably reduced by the unusually heavy expenditure anticipated in the current year. Owing, however, to the increased number of subscriptions received, there still remains a balance in the Treasurer's hands of £53 3s. 4d.

The Committee cannot refer to the subject of finance without expressing their deep regret at the loss the Society has sustained in the death of their esteemed Treasurer, Mr. William Scott, who had almost from its first establishment so zealously acted in its behalf. This death having occurred after the last annual general meeting had been held, temporary arrangements were made with his assistant, Mr. George Lambert, for the fulfilment of the duties of the treasurer until a new Treasurer should be elected. They now with pleasure announce that this office has been accepted by Mr. T. B. Haywood, President of the Reigate Rose Association, a gentleman well known as a successful rosarian, and one to whom the Committee entrust the financial interests of the Society with entire confidence.

Affiliated Societies.—The arrangements made with regard to affiliated societies last year appear to have given very general satisfaction. Several new societies having during the year become affiliated, there are at the present time no fewer than twenty-one societies wholly or in great part Rose societies in connection with it; and the Committee are happy to state that as the rules and regulations of the National Rose Society have been adopted by most of them, its influence has in this way been considerably extended.

Arrangements for 1883.—As the Exhibition at South Kensington was so great a success, the Committee have felt justified in again entering into negotiations with the Council of the Royal Horticultural Society for holding their metropolitan show at the same place and on similar terms in 1883. Several towns have solicited the Committee to hold their provincial meeting in their midst—viz., Sheffield, Manchester, Birmingham, and Sutton Coldfield; and after due consideration Sheffield has been selected, owing to its priority of application, and to the very hearty and liberal manner in which the Society was welcomed there in 1881. The invitation to again hold an exhibition at Darlington next year was with some reluctance declined, the Committee considering that the northern and midland growers would have an opportunity of exhibiting at the Society's provincial show, which it had previously been arranged should take place at Sheffield in the next county. So as to meet the wishes of exhibitors residing in the southern and south-western counties, arrangements have been entered into with the Royal Southampton Horticultural Society to hold a third exhibition there early in the season.

Members' Privileges.—Members subscribing £1 will be entitled to two private view tickets and also to four transferable tickets, admitting at the same time as the general public. Those subscribing 10s. are entitled to one private view ticket and also to two transferable tickets admitting at the same time as the general public. All these tickets are available for either one of the Society's exhibitions.

To exhibitors pass tickets will be given with their show cards, enabling them to leave and return to the place of exhibition at any time during the day.

The Committee, while again tendering their thanks to the Local Secretaries for their valuable aid, would impress upon them and their members generally, that although much has been done, yet that much remains to do, especially in endeavouring to increase the number of members, of whom there are at present only 390; and they would earnestly appeal to all their friends to work heartily and energetically for the Society in the coming year. They also desire particularly to thank Mr. E. R. Whitwell for having so successfully carried out the details of the late Darlington Show, and Mr. R. B. Cater, who contributed so much towards the success of the Bath Exhibition.

BALANCE SHEET FOR THE YEAR ENDING 30TH NOVEMBER, 1882.

RECEIPTS.		£	s.	d.
Balance in hand and at Bankers 30th November, 1881.....		97	9	4
Subscriptions received		273	9	0
Donations to Society		5	0	0
" Special money prizes		4	0	0
Affiliation Fees and for Medals from Local Rose Societies		36	15	0
Entrance Fees		10	0	0
From Bath		105	0	0
" South Kensington		80	0	0
" Darlington		65	10	0
Proceeds of Sale of Rose Catalogues		6	7	6
		£683	10	10

EXPENDITURE.		£	s.	d.
Printing, Stationery, and Advertising		52	14	0
Postage, Telegrams, Messengers, and Sundry Expenses ..		21	14	8
Secretary's Travelling Expenses to arrange Shows.....		5	16	4
Expenses—Bath Exhibition		6	1	0
" South Kensington Exhibition		6	16	0
" Darlington Exhibition		3	18	0
Medals for Provincial Societies		33	0	0
Accountant		10	10	0
* Prizes—Bath		148	5	0
* " South Kensington		211	15	0
* " Darlington		102	5	0
" Manchester, 1881, omitted in last Balance Sheet..		1	0	0
Printing, &c., Rose Catalogue		23	6	0
Drawing and Engraving Rose Group.....		3	6	6
Balance at Bankers		36	8	0
Cash in hand		16	15	4
		£53	3	4
		£683	10	10

Examined and found correct.

GEORGE P. HAWTREY, } Auditors.
GEORGE PAUL, }
GEORGE LAMBERT, Hon. Treasurer, pro tem.

The Chairman submitted the above report to the meeting, and it was proposed by Mr. E. R. Whitwell and seconded by Mr. George Paul, that the report and financial statement be adopted, printed, and circulated, which was carried. Some discussion then took place as to the advisability of reprinting the Catalogue of Roses issued by the Society, the first edition of which is very nearly exhausted; but it was finally concluded that it would be inadvisable to adopt this course until a sufficient time had elapsed to warrant the issue of an entirely new edition. It was, however, unanimously resolved that the paragraph in the above-mentioned catalogue to the effect that two or more Roses bracketed together in that list as too much alike should not be exhibited in one stand, should apply not only to all the National Rose Society's shows, but also to the exhibitions of societies affiliated to the parent Society during the ensuing year. The paragraph in the Report in

*Exclusive of the special prizes presented by members and others.

reference to the meaning of the term amateur was also considered satisfactory. Several localities were named, but no decision was come to as to where the Society's provincial Exhibition in 1884 should be held. The members present were, however, requested to make it generally known that the Society were seeking a suitable town in which to hold a Rose show in that year. Letters were read from G. Baker, Esq., Vice-President, T. B. Haywood, Esq., Hon. Treasurer, and the Rev. J. A. Williams regretting their inability to be present at the meeting. Cordial votes of thanks were then proposed and carried unanimously to the Chairman, Dr. Hogg; the Honorary Secretaries, the Rev. H. H. D'Ombraim and Mr. E. Mawley; the Treasurer during the past year, Mr. G. Lambert; the Committee; and the Horticultural Club for the use of their rooms, which brought the proceedings to a close.

The following is the list of Committee and Officers elected for 1883. Those preceded by an asterisk are new members. *President*: the Rev. Canon Holc. *Vice-Presidents*: George Baker, the Hon. and Rev. J. T. Boscawen, James McIntosh, the Mayor of Sheffield. *General Committee*: H. Appleby, R. N. G. Baker, *Rev. H. A. Berners, Rev. H. B. Biron, *R. Bloxam, T. F. Burnaby-Atkins, Rev. J. B. M. Camm, B. R. Cant, R. B. Cater, Rev. A. Cheales, Captain Christy, J. Cranston, H. Curtis, J. Cutbush, C. E. Cuthell, C. Davies, Rev. E. L. Fellowes, *H. H. French, Rev. J. M. Fuller, Rev. F. H. Gall, T. Gravely, *Rev. R. C. Griffiths, T. B. Hall, G. P. Hawtrej, *J. Shirley Hibberd, R. Hogg, LL.D., C. F. Hore, *J. House, J. Laing, M. T. Masters, F.R.S., W. Mount, G. Paul, W. Paul, J. D. Pawle, Rev. J. H. Pemberton, Rev. E. N. Pochin, G. Prince, T. F. Rivers, W. Robinson, J. Sargent, *A. Slaughter, J. Tinsley, A. Turner, C. Turner, H. J. Veitch, *J. Wakeley, E. R. Whitwell, *E. Wilkins, *Rev. J. A. Williams. *Auditors*: G. P. Hawtrej and George Paul. *Hon. Secretaries*: the Rev. H. Honeywood D'Ombraim, Edward Mawley. *Hon. Treasurer*: Thomas Burt Haywood.

In the evening the fifth annual dinner of the Society was held and well attended, Hon. and Rev. J. T. Boscawen in the chair, Dr. Hogg occupying the vice chair.

GROWING CHRYSANTHEMUMS FOR EXHIBITION.

A FEW years ago I searched every book and paper I could obtain on horticultural subjects to gain some information upon growing Chrysanthemums for exhibitions, but to no purpose, as I could find nothing beyond the ordinary cultural directions. What we want is plain pithy articles showing how such grand blooms as those exhibited at Kingston, Liverpool, and elsewhere, are grown. What are all the ingredients used in potting and top-dressing, and when is it done? What kind of liquid manure is used, when commenced and when left off? What importance is attached to ripening of the wood, if any? when and how should it be accomplished? What different culture do the Japanese require? do they require heat after being housed? I find all these points require attention. Will some of the great exhibitors, or others who understand the subject, give their experience on the proper culture of the Chrysanthemum. Another question—As varieties are very numerous, could not an election be taken of, say, thirty-six incurved and thirty-six Japanese, after the manner of the Rose election? and, like Roses, are not some of them too much alike to be shown in one box as distinct?—J. L.



KITCHEN GARDEN.

ALL work should be advanced as much as possible at this period of the year. During the prevalence of frost wheel out manure and composts and spread it at once, so that any worms or grubs it may contain will be destroyed by exposure to the frost. No opportunity should be lost of turning any vacant ground, so that it may be well pulverised and friable for receiving the seeds or plants in spring. Sufficient wintry weather has already been experienced to necessitate vigilance in regard to tender vegetables. A portion of the Celery crop should likewise be covered with straw or litter, so that the daily supply can be lifted as required. The remainder of the Celery crop must be fully earthed up as a means of protection. Although it will be necessary during very severe weather to cover

frames containing Endive, Lettuce, Parsley, and Radishes, the frames should be opened whenever the weather will permit, and so also should handlights containing Cauliflower plants.

FRUIT HOUSES.

Peaches and Nectarines.—With the buds swelling in the earliest house gentle fire heat may be provided. To admit of a free circulation of air by day and at night the house must be entirely closed. No addition must, however, be made to the general range of temperature, which should still be kept at 50° to 55° by day and 40° to 45° at night, with an advance to 60° or 65° from sun heat. It is best, however, to err on the safe side, particularly through the early stages, making up for any lost time when the fruit has passed stoning. Old trees and those that have been forced for a number of years will endure more heat than those not previously subjected to the forcing process. Much also depends upon the position of the roots; as with these inside, as all early-forced Peaches ought to be, and kept near the surface by rich top-dressings, forcing may be carried on more quickly and with less risk than when they are outside, where, however well protected, they must necessarily be liable to checks from sudden depressions of temperature. Syringing the trees, walls, and paths must be regularly attended to daily, but the trees must not be kept constantly wet, the afternoon syringing being performed in time so that the trees become dry before dark. Fermenting materials on inside borders must be frequently turned for the purpose of obtaining atmospheric moisture, and to maintain a genial heat.

Continue pruning and tying in succession houses, and proceed with late houses in that respect as opportunity offer. Lay in the wood sufficiently thin to admit of the full development of the foliage, leaving it its full length where the space will allow. Gross sappy shoots should be cut out, and provision made for a good supply of young shoots in such trees and those extending by cutting them back to firm well-ripened wood.

Figs.—Pay attention to the leaves that have been placed loosely about the pots, and if the heat does not exceed 75° they may be pressed firmly down and more introduced from the reserve heap, which should be kept in readiness for use as needed. Where the trees in pots are not large they may be placed on the fermenting materials; but when the trees attain a good size the pots should be supported on pedestals of dry bricks, so that the necessary turning and additions of fermenting materials can be effected. The night temperature should still be kept at 50°, with an advance of 5° to 10° more by day in mild weather; but as the fermenting materials will be almost, if not quite, enough to secure this without artificial heat, yet it is not advisable to dispense with this entirely, as a gentle heat in the pipes will prevent condensation and otherwise produce conditions favourable to frequent damping of the trees and walls of the house.

Complete whatever may be necessary in getting the succession house ready for closing, and proceed with the pruning of the trees in later houses. Cut out the old shoots that have reached the extremity of the trellis, and shorten spurs, leaving, however, sufficient wood for bearing without crowding the trees. Train and tie-in on the fan system, leaving plenty of room for the extension of the new growths, as Figs that have plenty of leaf space produce the best-coloured and finest-flavoured fruit. Clear the wood thoroughly of insects by repeated washing of strong softsoap water (8 ounces to a gallon), and if there be scale add half a wineglassful to every gallon of spirits of turpentine. A soft brush must be used for the young wood, as the young fruits are easily disfigured, the more forward being liable to be destroyed if due care be not taken.

Cherry House.—If the house and trees have been thoroughly cleaned forcing operations may now be proceeded with, maintaining 40° as the night temperature and 50° in the daytime by artificial means, which should not be exceeded in either case for the present. If the sun raise the temperature to 55° ventilate at that temperature, and do not allow the heat to rise above 60° without full ventilation. The border should be mulched with partially decayed manure 3 inches thick, as that prevents evaporation and keeps the soil uniformly moist. If the soil is dry supply tepid water repeatedly, but frequent syringings will not be needed.

Cucumbers.—Severe weather with little sunshine renders sharp firing necessary to maintain a suitable temperature, and care is needed, as the air is often so dried as to be injurious to the health of the plants. Thinning the fruits must be attended to, overcropping soon exhausting the plants, removing at once all male blossoms and any damaged leaves. Very little if any stopping will be required now, except the growths of vigorous plants. See that the plants do not suffer from insufficient supplies of water, but be careful not to give too much. Atmospheric moisture must be sparingly given, but an ungenial condition of the atmosphere should be avoided by damping available surfaces occasionally.

PLANT HOUSES.

Pelargoniums.—The earliest cut-back, large-flowered, and other varieties that were first shaken out and placed in smaller pots will now have taken root freely in the fresh soil, and should at once be moved into the pots in which they are to flower. Large pots are not necessary, as the best specimens can be had with heads of bloom in 8-inch pots. The aim should be to have the soil full of roots before spring, and then supply them with liquid manure. The soil must be rich turfy loam, with a fifth of thoroughly reduced manure incorporated, and a little sand, ramming it well into the pots, for if potted loosely the plants have a tendency to produce too much foliage with few roots and flowers. Place the plants near to the glass, keeping them well tied out to form the plant for which they are intended. If simply wanted for decoration they only need the shoots tied out so as to admit the light amongst them, for if allowed to assume a close erect position they become drawn and weakly.

Calceolarias of the earliest-sown plants should now be removed into larger pots; those 7 or 8 inches in diameter will be large enough for general decorative purposes, but if wanted to be grown large they should have another shift later on, as it is not advisable to give them too much root space at once. The plants cannot have too much light, and should be kept cool and moist, frost, however, being excluded. *Humea elegans* also should be shifted into larger pots as they require it. They also need to be kept cool and moist and free from aphides, these and Calceolarias having the foliage injured by too strong a fumigation with tobacco. Cinerarias should be regularly supplied with liquid manure, shifting any needing more root space before they become very much rootbound.

If a few plants of *Cytisus racemosus* be placed in a house with a temperature of 50° artificially they will soon come into flower and be very useful for conservatory decoration. A few more *Epacris* placed in a house with a similar temperature will come into flower shortly, and succeed those that were similarly treated earlier in the autumn. Varieties that have a tendency to bloom early, as these not only flower in a lower temperature, but keep fresh much longer either on the plant for conservatory decoration or for cutting. The varieties of erect habit usually are disposed to flower earlier than the branched sorts, of which there are now many fine forms in shades of colour from white up to crimson.

Where greenhouses are kept furnished with flowering plants damp will now have to be guarded against by means of gentle fires, as the condensed vapour depositing on the blooms will cause the petals to be spotted and the buds to decay. Whenever fires are resorted to for expelling damp a small chink of air should be left on at the same time, in order to allow of the escape of superfluous moisture. Primulas should now be carefully watered, especially the double varieties, not wetting the crowns, which induces decay.

THE BEE-KEEPER.

BEE LORE.

WE have sometimes been much amused, oftentimes sore perplexed, by the many and various superstitions concerning bees. In all parts of England, Scotland, Wales, and Ireland certain curious myths are religiously believed and held sacred by old-fashioned bee-keepers. Many of these are widespread, others

are local to a few counties and unknown elsewhere. As we before remarked, some of these superstitions are amusing and can be traced their origin; whereas others perplex one greatly to know how they can have arisen.

The all-prevailing custom among villagers and farm labourers of ringing bells, beating pots or kettles, and otherwise making as much noise and hubbub as possible when a swarm issues, was in vogue in very early ages. Since we do not believe that the noise has any effect whatever in causing the swarm to settle, we can only suppose that the institution of the custom was for the purpose of giving notice to neighbouring bee-keepers that the operator on the bell, drum, or kettle claimed the rising swarm and identified it as his own. "Habit is second nature" says the proverb, and the habit in question holds sway over the rural bee-keeping world for long centuries after the cause for and establishment of that habit has been forgotten. By an old law of the time of Alfred the Great a bee-keeper is permitted to follow and to secure his swarm if on another's property; but he must keep the swarm in sight, and that his neighbours may know he is following it he must ring a bell as he pursues it. The bell-ringing is now oftener replaced by yelling and the beating of a kettle or rattling of fire-irons, and the bee-keeper is not so much intent on calling his neighbours' attention to the fact that he is following his bees, as on charming the swarm and causing it to alight seduced or terror-stricken by his rough music.

The law of Alfred evidently explains the origin of the custom, although, as we said above, the habit prevailed centuries before that law was made. Virgil refers to the tin-can music in his fourth Georgic. Plato, Pliny, Varro, and Columella all speak of it, and attribute the settling of the bees either to fear or joy; while Aristotle is not certain what the effect is which the beating of brazen vessels has on the bees. We believe that a violent concussion of the air affects a swarm. A gun fired near a hovering swarm seemed to cause it to pitch suddenly, but we intend to make further experiments and make the result known.

Who has not heard of the bees who would never thrive unless the hive were anointed with a concoction of beer and treacle or sugar? Tom Clodpole has some bees in his garden which never do well unless the carcase of a dead cat dangles from a pole close to their hive. Another sapient skepist always places his manure heap as handy as possible to his honey-gatherers. Nothing will convince him that it is unnecessary or even prejudicial to so combine, as Samson did, the strong and the sweet. Whence shall we trace this deeply seated belief? Are Tom and his sapient brother right, and are we wrong? The solution lies in a nutshell. Bees require salt, which they obtain from various natural sources. The decomposition of the dead cat, the heating of the manure heap, are two generators of salt; and the bees, unheeding or disregarding the hideous and the filthy, seek and find what they require and carry off the pure salt to their hives. Thus the countryman is right so far as his knowledge guides him, his manner of application only is wrong. In early spring, before honey is distilled in the flowers, we give the bees the requisite small quantity of salt with their artificial food. Once let the earth bring forth her floral treasures, and the salt will be found by our insect friends in sweeter laboratories than the carcase of a cat or a manure heap.

But what shall we say of Mrs. A, who has kept bees nearly all her life, and that life a tolerably long one? We are almost afraid to tell of her recipe for dressing a hive to receive a swarm. However, at the risk of revealing a secret, and perhaps of shocking some reader with a very delicate constitution, the secret must come out. Many a swarm of bees had she lost before she was told of the magic "dressing." We might perhaps laugh at her when we heard what it was; but although we seemed to know how to get bees out of a hive (we had just driven some condemned bees), we should never know how to be sure of keeping bees in a hive unless she gave us her recipe. Since using it she had never lost a swarm. And what was the potent remedy? We hope the printer will put it in very small type. "A little bit of pig dung about the size of a nut!" "Just stick it in the middle of the crown of the skep, and the swarm won't never leave it there." So says Mrs. A, and she must know, for she kept bees long before many of us new-fashioned bee-keepers played with our rattles. How shall we explain this curious perversion of the sense of the nectar-scenting bee? Only by saying it is a proof of the old saw, "There's no accounting for tastes."

There are still living among us the bee-keepers who will never sell a swarm, as such an action would certainly bring them bad luck, and others who tell all great afflictions to their bees. They would expect to lose a beloved sister, father, or mother if the bees were not duly informed of brother Tom's death. We generally find that such of our bee-confiding friends are very misty as to

their knowledge of the natural history of the bee. They do not believe in the queen bee, but, like Virgil of old, believe that a king governs the community, and that what they tell to the bees on the alighting board is whispered into his majesty's ears. When a hive dies from want of sufficient food or from queenlessness it has invariably succumbed to "them wopses." One old lady bee-keeper has reasoning powers so sparsely developed that she said (and indeed she was not joking) "she always left her bees till long after Michaelmas before she took 'em up, eos them bluebottles is all over then, and the honey ain't got no maggots in it!"

It is a common mistake for certain hives of bees to be accredited with collecting a more or less excellent kind of honey than their fellow colonies. Even by those who are expected to be better informed, one is often asked such a question as this—"Your yellow-banded bees make much better honey than the common black ones, don't they?" The fact is overlooked that bees do not make the honey, but only collect and store it. Of course there may be times when bees from one particular hive work more during a flow of a special kind of honey, and thus store it in greater quantities than a neighbouring hive may do. The one hive may, from particular circumstances, just at that time be unable to send forth many gatherers; and although it may perhaps later on become stronger than its strong neighbour, yet it may just miss a harvest of the best kind of honey, and at the end of the season may be weighty with an inferior kind gathered later in the season. How easily, then, hive No. 1 may get a good name as the collector of a superior kind, and hive No. 2 a bad name as the storer of very poor stuff.

There is another very curious superstition which holds sway in some parts of the country, notably in Hertfordshire. The country folk believe it to portend the greatest ill luck to themselves and their bees when a swarm settles on dead wood. We knew a labourer who had for many years kept bees, and who had not been induced to part with a swarm for money. We persuaded him to sell us a strong swarm, and he was heard to say that his bees had never done so badly as they did that year. Matters, however, reached a climax the following spring, when his first swarm, a fine strong one, settled against the pales of the garden fence. He was heard by a friend who was passing to bemoan his ill luck, and to take the gloomiest of views for the future well-doing of his bees and his family. Returning some time after, our friend found the beautiful swarm a soddened dead mass on the ground. This wise prophet of evil to come had sacrificed fifteen shillings' worth of bees to propitiate the dark fates who threatened him, and who had warned him by causing his bees to settle on dead wood! We believe that he was fully convinced that he had been only wise and prudent in what he had done; for that year, the year 1876, was a grand year for honey, and the bees he had left swarmed on living bushes and stored a heavy harvest. "When ignorance is bliss 'tis folly to be wise!" The same man, it may be noted, was afterwards just prevented by his employer from dealing summary destruction to the green fly on the fleshy leaves of a fine *Calla aethiopica* by sweeping them off with a birch broom. When the insect tribes were to be executed he stopped at no half measures. We will conclude this paper with an eastern legend.

The Queen of Sheba having failed to puzzle Solomon with many enigmas and trials of his wisdom, stood some distance from the king holding in each hand a bouquet of lovely flowers. Those in one hand were Nature's own product, the other bouquet consisting of the most cunningly worked imitations. It was impossible for the eye to detect which were natural and which artificial. Solomon applied to his courtiers and wise men to give their opinion, but they owned their inability to decide between the two bouquets. The wise king then commanded a casement of the cedar palace to be thrown open, and admitted some bees. Attracted by the sweet perfume of the real flowers the bees at once solved the mystery.—P. H. P.

FORMIC ACID AND HONEY.—Honey, according to A. Vogel, says the *Scientific American*, contains on an average 1 per cent. of formic acid. Observing that crude honey keeps better than that which has been clarified, E. Mylius has tried the addition of formic acid, and found that it prevents fermentation without impairing the flavour of the honey.

TRADE CATALOGUES RECEIVED.

Ant. Roozen & Son, Overveen, near Haarlem, Holland.—*Catalogue of New Gladioli, New Dahlias, and Miscellaneous Plants.*

Hogg & Robertson, 22, Mary Street, Dublin.—*Catalogue of Trees and Shrubs.*

Thomas S. Ware, Hale Farm, Tottenham, London.—*List of Single Dahlias.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (J. C.).—The address of Mr. Peter Henderson is 35, Cortland Street, New York.

Work on Orchids (J. F.).—Mr. B. S. Williams' "Orchid Manual" would probably suit you. It is published by the author at the Victoria and Paradise Nurseries, Upper Holloway, price 7s. 6d., post free 8s.

Chrysanthemum Sport (W. A. W.).—We consider the variety sufficiently distinct from Guernsey Nugget to justify you in naming it. It is a great improvement on the variety from which it originated, not only by its great breadth of petal, but by the delicate yet distinct pink tint on the reverse side of the petals. This is very apparent under artificial light, and, as well-grown blooms will be incurved, will be the prominent colour. You had better endeavour to grow some very fine blooms, which we shall be glad to see, as we regard the variety as one of considerable promise.

Laburnums and Cattle (J. F. C.).—Laburnum seeds being poisonous we should not plant trees within the reach of horses or cattle, unless we had evidence that trees are growing in paddocks or parks where these animals are kept and have not been injured by eating the leaves or seeds. If any of our correspondents can adduce instances of Laburnums to which cattle have access not proving injurious to the animals we shall be glad to hear from them, or, on the other hand, if they can state any instances of cattle-poisoning by Laburnums.

Anemones (A Working Man).—We much appreciate your kind offer, and will accept what you express a desire to send. If you address a parcel the same as you addressed your letter it will reach us, but it will be well to write to us at the same time, informing us of the dispatch of the parcel to our office. If you pack them in a little damp hay or litter, to be closely rolled up in a piece of old sacking or similar material, and tied securely, they will travel safely.

Climbing Plants for a Porch and South Wall in Oxfordshire (A. C.).—The best of the Honeysuckles are *Lonicera flexmosa*, *L. brachypoda*, and for its early fragrant flowers *L. fragrantissima*. These would answer admirably for your porch. Of very choice climbers for a south wall the best six are *Berberidopsis corallina*, *Escallonia macrautha*, *Ceanothus azureus*, *Jasminum officinale*, *Fremontia californica*, and *Ampelopsis Veitchii*.

Glass Wall Protectors (J. F. P.).—We think you will find the necessary details of the Peach-protector in the illustrated article published in No. 928 of the Journal, January 9th, 1879, pages 24 and 25; also in answer to questions called forth by that article on page 62 of No. 930, published January 23rd, 1879. If you do not possess these numbers they can be had from the publisher, price 3½d. each, post free.

Pruning Gloire de Dijon Rose (Cairney).—You are fortunate in having such fine growths. Shorten them at different heights, some from 2 to 4 feet, others from 5 to 8, and the remainder leave nearly their full length. If they are likely to crowd the wall you might take one down and train it across the others near the base, only shortening it slightly, and it would produce a bloom from every eye. So would any of the shoots if you do not object to training them in this manner. The lower buds do not break when long shoots are trained in a vertical position.

Adiantum cuneatum (H. S. P.).—This, we presume, is the Fern to which you allude, and which you state is now "at a standstill." It is better resting than growing at this season, and all you have to do is to water it judiciously to keep the fronds quite fresh, but not saturating the soil so as to cause the roots to decay, nor keeping it so dry as to cause incipient fronds in the centre of the plant to shrivel. A temperature of 45° will be suitable until February. At that time more heat and a genial atmosphere will promote fresh growth, and the soil being suitable (turfy loam, peat, and charcoal), strong fronds will be produced. Spring is the time for repotting, but as you say nothing about the size of the plants nor pots they are in, we are unable to give you any useful particulars on that point.

Spiraea japonica (Idem).—The proper time for dividing the plants is after they have flowered in pots, say about May or June, and it is then a good plan to plant them out in rich soil in the garden. They may be also grown in pots during the summer, but this plan involves more labour in watering than if planted out. If plants having strong crowns are taken up and potted in the autumn, placed in gentle heat, and judiciously watered, they will grow and flower freely in due time. Tobacco smoke is injurious to the foliage of these plants.

Gloxinias (Idem).—The corms may be wintered safely in a temperature of 60°, keeping the soil dry. In the spring sprinkle them occasionally, and as soon as growth is apparent shake them out and place the corms in small pots in a compost of peat, loam, and leaf soil, surrounding them with sand, and apply water with great care. Before they are rootbound shift into larger pots, using stronger and richer soil, and keep them in a warm house but shaded from the midday sun, and they will grow vigorously.

Gooseberries for Profit (A Farmer).—We doubt if you will find it advantageous to carry out your project of purchasing the "celebrated Lancashire kinds," first because the trees are more costly than established sorts that are

grown and sold by the thousand by nurserymen; and secondly because they do not always bear freely. For gathering green we doubt if you will find any to surpass Whitesmith and Lancashire Lad, the latter a red variety, and good also for preserving. Crown Bob bears heavy crops of fine fruit, but in all soils the trees do not grow freely. Early Sulphur is one of the best for affording ripe fruit as soon as possible; while for late use and general preserving purposes the Red Warrington has few if any superiors. If any of our readers can name more profitable sorts to grow by the hundred or thousand than those we have recommended we will readily publish the names with any particulars of the varieties that are furnished.

Conifer Hedges (*T. Wilkinson*).—There are few if any Conifers that will form a more beautiful hedge than *Thuja gigantea*, usually sold under the name of *T. Lobbi*. It is hardy, retains its bright green colour throughout the winter, and is close yet elegant in appearance. *T. occidentalis* is cheaper and makes a good hedge, but in light soils is apt to get thin at the base. We have seen ornamental hedges of the *Cedrus Deodara*, *Abies excelsa*, and *Cupressus nutkaensis* (often sold as *Thujopsis borealis*), and good compact fences of *Cupressus Lawsoniana*; but the firmest, closest, and most durable of Conifer hedges are those of the Yew, but it is of somewhat slower growth than most of the other trees named, and its dark colour may not suit your taste. In planting to form hedges young trees should be inserted from 1 to 2 feet apart according to their size, the ground being trenched and manured to promote free growth.

Spray Diffuser (*S. Hoskins*).—There are several appliances for distributing insecticides in the form of spray. One of the most serviceable of these has been advertised by Mr. Wells, Earlswood Nurseries, Redhill. We have nothing to add to nor detract from the following remarks that we published last year relative to this handy little garden appliance. It is much less of a plaything than some spray-distributors that we have seen, and is used precisely the same as a pair of bellows. An insecticide of any kind, and of approved strength, if placed in the reservoir can be distributed far more economically than through a syringe, and is often more effectual, as the spray adheres to the foliage like dew, which is not the case when liquid is applied through a syringe. Any insect-infested plant in a collection can easily be dressed with the aid of this implement, and it will be of even greater value in destroying thrips and other insects on Vines where the Grapes are colouring. For this purpose this spray-diffuser will be of substantial value, as a large vine may be dressed in a very short time without injuring the Grapes by placing the nozzle between the bunches and covering the foliage with, to the insects, deadly dew.

Inarching Vines (*J. D.*).—The information you require is not given in either of the works to which you allude; but you will find different methods of propagating, including inarching, in our "Vine Manual," which can be had from this office post free for 3s. 2d.; if you also send 3d. to the publisher and ask him to send you No. 617 of the *Journal of Horticulture* you will find the details of an excellent method of inarching or bottle-grafting, which can scarcely fail to be of service to you. The particular method that is best to adopt can only be determined by circumstances; but we think you will have no difficulty in accomplishing your object. If we can render you any aid we will readily do so on receiving particulars of your case, and the means and material at your disposal.

Weeds among Fruit Trees (*W. K.*).—"Water Grass" is very common on such soils as yours, and where the land is under cultivation can only be got rid of by frequent tillage and cleaning. We do not think any special manure will destroy it. Practically we do not think there is any difference between English and foreign bones, and as those that you have used have answered well, you cannot do better than continue them; then lime, we think, will not be needed. There is no better manure for fruit trees than bones.

Jacobæa Lily Culture (*Subscriber*).—The following extract from our "Greenhouse Manual" will answer your inquiry, except, as you have only one bulb, we should place it in a small pot and plunge this in a larger, as the soil in the smaller pot could be kept in a more equable state of moisture than if the pot were exposed. *Sprekelia formosissima*, or *Jacobæa Lily*, has narrow Amaryllis-like leaves; flowers rich crimson, on stems about a foot high. It is an old favourite, and without forcing, or in the greenhouse, it flowers about June, earlier or later according to temperature. With forcing it may be had in flower from February. It has one great defect—namely, that of flowering either before the leaves are produced or when there are but few of these. Like many others, the beauty of the specimen is greater when there is a mass of bulbs in a pot, half a dozen or more not being too many for a 6-inch pot. They succeed admirably in a compost of fibrous loam two parts and one part of leaf soil, and should be covered to the neck. Drain the pots well and place them near the glass. From the end of September to April keep the plants dry on a shelf; in April gradually moisten the soil, having previously examined the drainage and put it in order, also removing the surface soil and giving a top-dressing of fresh. When the flower scapes appear water copiously, and after fresh foliage is made give very liberal supplies up to September; then place the plants on a shelf near the glass and lessen the supply of water, but not so as to cause the foliage to become limp, and after September keep them dry. If the plants are required to flower, say, in April or earlier, they may have the drainage put in order, removing any old soil that comes away freely, and be top-dressed, placed in a bottom heat from 70° to 75°, and a top heat from 55° to 60°, and they will soon start into flower. Just before the blooms expand the pots should be gradually withdrawn from the hotbed before removal to the greenhouse or sitting-room. Avoid too large pots and potting over-frequently. After the removal of the old soil the pot should just hold the roots without cramping, while allowing of a little soil all round. No harm will result from the bulbs being left in the pots until the latter split; on the contrary, the plants are never so healthy nor so free-flowering as when they are in this state. If they should be enfeebled in growth repot them in a smaller-sized pot.

Vine Border—Garnishing Grapes (*Idem*).—Your Vine border will not require any further covering. Garnishing fruit is a matter of taste and the materials at command. Some use green and variegated Holly, sprays of Conifers, or any other evergreens; others prefer the foliage of stove plants, such as *Coleuses* and *Fittonias*. Not knowing your resources we cannot give a more explicit reply.

Pinus Lambertiana (*C. M. A.*).—In its native habitat, California and Oregon, this is the tallest of all the Pines, often reaching a height of upwards of 200 feet. In Veitch's excellent "Manual of the Coniferae," it is stated that "In England *Pinus Lambertiana* thus far shows no indication of rivalling the gigantic dimensions of its parent in California. Although introduced fifty years ago, there are few specimens that exceed a height of 50 feet; its growth in all soils and situations is very slow, especially during the first years from the seed. It is, however, a handsome tree of erect habit, with branches short and slender in proportion to the height of the trunk, the lower ones spreading, those higher up with the ends inclined upwards, and the highest ones ascending and generally

well furnished with foliage distinguished by its bluish-green tint. To insure a good specimen of this noble tree it should be planted in a situation sheltered from winds blowing from the north, north-east, and east, and a clear space having a radius of not less than from 20 to 25 feet should be allowed for it." Dr. Hogg, in his "Vegetable Kingdom," states:—"The timber of *P. Lambertiana* is white, soft, and light, and produces an abundance of pure amber-coloured resin, which, when the trees are partly burned, acquires a sweet taste, and in this state is used by the natives of the Rocky Mountains as a substitute for sugar. The seeds are eaten either roasted or pounded into coarse cakes, for use during the winter season."

Fruit for Market (*Vectis*).—It is next to impossible for us or anyone to give categorical replies to all the questions you have submitted. Your first query we answer in the negative. The prices represent the current retail value of the different articles enumerated in the lists, and in most cases the probability is that a less amount would be returnable by a salesman disposing of the same class of goods, after deducting commission. Your second question we answer in the affirmative, yet conditionally—namely, assuming the soil and district to be favourable, and sound judgment and good management are exercised, the investment we should expect would prove fairly lucrative; or, in other words, some persons might employ the sum named in the manner you suggest profitably, while in other hands and under differing circumstances the returns would not be satisfactory; and, further, under any circumstances some time must necessarily elapse before any substantial return would be available from the culture of hardy fruit. The first half of your third question we answer without any qualification. It is not at all likely that planting railway embankments will affect the fruit supply of this country, but that the American yield will affect it more or less is quite probable; still, by growing the best market varieties and producing fruit of high quality you ought not to fear a competitor who has to send his goods nearly four thousand miles to market. Your fourth question depends wholly on the skill and aptitude of the cultivator. The safe plan would be to combine both forms of culture, as the former would give immediate returns, and in the meantime the latter would grow into profit, and, the seasons being favourable, would increase in value yearly. As to glass coverings, you must avail yourself of the experience of cultivators in your own district; in some places they answer well, in others they fail occasionally. In reply to your fifth and last question, we think you would act more wisely by extending your present business if it is profitable, than by running the risk of establishing another near London. The nearer you come to the metropolis the greater is the value of land and the cost of labour; and further, you would lose a week in the maturation for market purposes of your crops, as we suspect the season in your district is quite a week earlier than in Surrey, Kent, or Middlesex, which is a point of great moment. We know nothing about your local rates for the transit of goods, but we know that both fruit and vegetables are sent much further distances with profit to the cultivators than you will have to send if you decide to cater for the London market. In growing fruit, &c., for market some persons succeed where others fail. If you have succeeded in a small way you will have gained experience that may warrant you in extending the scope of your operations; but if you have not had a fair return for the outlay already incurred you will do well to act cautiously. It is one thing to be "very fond of gardening," but quite another matter to practise it successfully as a means of procuring a livelihood. Endeavour to thoroughly understand the whole matter, and to see your way clear before investing money that you cannot afford to lose, and do not put all your eggs into one basket until you have learned by experience which basket to choose.

Names of Fruits (*J. L. B. C.*).—The delay that has occurred is the consequence of your not having complied with the request at the head of this column. No. 2 is Alfriston; 4, Bess Pool; 5, Cellini; 7, Moss's Incomparable. The others we cannot name, some of them were decayed when examined. (*T. E. P.*).—Hughes' Golden Pippin. (*E. Bartrum*).—Warwickshire or Wyken Pippin.

Names of Plants (*E. Y., Norfolk*).—All the plants you name would be admissible in a class for greenhouse plants. The one of which you send flowers and leaves is *Chrysanthemum pinnatifidum*. (*X. Z.*).—1, *Selaginella Wildenowii*; 2, *Brainea insignis*; 3, *Asplenium dimorphum*; 4, *Adiantum macrophyllum*; 5, *Blechnum brasiliense*. (*W. R.*).—1, *Maranta arundinacea*; 2, *Tradescantia zebrina*; 3, *Tradescantia Warscewiczii*; 4, *Fittouia argyroneura*.

COVENT GARDEN MARKET.—DECEMBER 13TH.

TRADE quiet. Market largely dependant upon Canadian Apples, which are reaching us in good condition. Common qualities of Grapes principally off the market, and good samples are in full demand at firm rates.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sleeve	2 0 to 7 0	Grapes	lb.	0 to 5 0
"	per barrel	20 0 35 0	Lemons	case	20 0 30 0
Apricots.....	doz.	0 0 0 0	Melons	each	2 0 3 0
Cherries.....	1 sieve	0 0 0 0	Nectarines....	dozen	0 0 0 0
Chestnuts.....	bushel	10 0 13 0	Oranges	100	6 0 10 0
Currants, Black..	1 sieve	0 0 0 0	Peaches	dozen	0 0 0 0
" Red.....	1 sieve	0 0 0 0	Pears, kitchen ..	dozen	1 0 2 0
Figs.....	dozen	0 6 1 0	dessert	dozen	1 0 2 0
Filberts.....	lb.	0 0 0 0	Pine Apples, English	lb.	2 0 3 0
Cobs.....	100 lb.	45 0 50 0	Raspberries	lb.	0 0 0 0
Gooseberries	1 sieve	0 0 0 0	Strawberries	lb.	0 0 0 0

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4 0	Lettuces	score	1	0 to 1 6
Asparagus.....	bundle	0	0 0 0	Mushrooms	punnet	1	0 1 6
Beans, Kidney....	100	1	0 0 0	Mustard & Cress ..	punnet	0	2 0 3
Beet, Red.....	dozen	1	0 2 0	Onions	bushel	2	3 2 6
Broccoli.....	bundle	0	9 1 6	Parsley..... doz. bunch	3	0 4 0	
Brussels Sprouts..	1 sieve	1	6 2 0	Parsnips	dozen	1	0 2 0
Cabbage	dozen	0	6 1 0	Peas	quart	0	0 0 0
Capsicums.....	100	1	6 2 0	Potatoes	cwt.	6	0 7 6
Carrots	bunch	0	4 0 0	Kidney..... cwt.	6	0 8 0	
Cauliflowers.....	dozen	2	0 3 0	Radishes.... doz. bunches	1	0 0 0	
Celery	bundle	1	6 2 0	Rhubarb	bundle	0	4 0 0
Coleworts.....doz. bunches	2	0 4 0	Salsify	bundle	1	0 0 0	
Cucumbers.....	each	0	6 1 0	Scorzonera	bundle	1	6 0 8
Endive	dozen	1	0 2 0	Seakale	basket	2	6 3 0
Fennel	bunch	0	3 0 0	Shallots	lb.	0	3 0 0
Garlic	lb.	0	6 0 0	Spinach	bushel	3	0 0 0
Herbs	bunch	0	2 0 0	Tomatoes	lb.	0	8 1 0
Leeks.....	bunc	0	3 0 4	Turnips	bunch	0	2 0 0



POULTRY AND PIGEON CHRONICLE.

THE LEICESTER BREED OF SHEEP.

(Continued from page 538.)

It was the custom formerly, as it is now in various places, for the sheep-breeder to set aside the most promising of his ewe and ram lambs for the purpose of breeding, and this with the occasional exchange of animals of the same blood with other known breeders (an exchange which when guided by discretion) had up to Bakewell's time constituted the only source of improvement or preservation deemed requisite. But Mr. Bakewell introduced the novel plan which, although at first sight may appear selfish, yet perhaps has tended more to the improvement of stock than any other system yet invented. After he had established his own flock, and had fully tried and proved its superior qualifications, instead of selling his rams he offered to let them at a certain price. The advantages of this plan are self-evident; it enables the breeder who wishes to improve to do so at a moderate price. This plan at present is not discontinued by ram-breeders, but is kept within very moderate bounds as to numbers, but not so as to price, for in case the breeder possesses a few extraordinary animals he obtains a high price for the letting, and still retains them in his own possession and for use in his own flock. He also sells a larger number, thereby obtaining a large income from them in each year, and still preserves the best of his standing flock for future maintenance of the breed.

It is curious to note that with all the peculiar restrictions by which the members of the Dishley Club, or as called by some Bakewell's Club, in 1796 (the year after Mr. Bakewell died), no less than sixteen English counties were in communion with the Club, including the border counties. After the Dishley Club disappeared a club was started in Lincolnshire; the flockmasters connected with it met at Lincoln and drew up the rules ("for the benefit of the public") ostensibly. They were framed somewhat after the Lincolnshire model, and bound over the members not to show at a market, or let more than a hundred rams, or serve ewes at less than five guineas each unless sixty were sent. When Mr. Bakewell's flock was sold it went into the hands of Mr. Smith of Dishley, and passed from him to Mr. Honeybourne. It was, however, finally dispersed amongst Messrs. Stubbins and others, with whom we notice the name of Mr. Barford of Foxcote, to whom we shall specially refer further on; also to Mr. Phillip Skipworth the elder, whose purchase of ewes laid the foundation of the celebrated Aylesbury flock, the property of the late Mr. Torr of Shorthorn renown.

We cannot pass over without special remarks another era in the history of the Leicester breed, in which Sir Tatton Sykes made his first purchase of ewes, comprising half a score at ten guineas each, of Mr. Sandy. The Baronet loved a small thrifty sheep, but he did not look for a very lengthy style of fleece, preferring a closer shorter coat than was usually grown by the Leicester sheep. He liked also to feel for the cloven back in a ram as the best index of good firm flesh. Only grass, Turnips, and hay were used in maintaining the flock, as cake, corn, and peas found no place in his fold stores. In his earlier days at Mr. R. Colling's sale he gave as much as 156 guineas for a shearling ram "Ajax." When the Cotgrave flock was dispersed in 1844 he went up to a hundred guineas for a three-shear ram considered the "pillar of the flock." For some years before his death the worthy Baronet would allow no rams to be used which were not

of his own breeding. His letting of rams of the Hedmere flock in September, 1862, was his fifty-ninth and his last, but the prices made were not high. He never would prepare anything for show, hence they did obtain show prices; but the Hedmere flock has gone well to the fore since his death, both in the hands of Lord Berners and Mr. Borton, at the Royal Agricultural and the Yorkshire, as well as the Christmas shows.

Since that time the breed has been still further advanced; some of the evils which crept in with the earlier improvements, such as weakness of constitution, sterility, and inferiority of wool have been to a greater or less extent amended, and at the present day the breed remains the most perfect of any of the long-wools as respects the carcass, and, in the opinion of its advocates, though disputed by others, the best adapted and most profitable for fertile pastures. While there is no long-woolled breed but what has obtained some improvement from a cross with it, the Leicester as regards its peculiar qualities has derived no advantage from a cross with others; but its unrivalled qualifications can only be retained by preserving the breed pure and untainted. The late Mr. Sanday, to whom we have previously referred, was one of the celebrities of the same period, for at five shows he won all the first prizes, and according to the Steward's report of the Royal Agricultural Society's meeting at Worcester, where he showed for the last time, he however won fifteen first prizes, seventeen seconds, and three thirds for rams; eleven firsts, ten seconds for shearing ewes; besides eighteen high commendations in fourteen years. His sales in 1862-63 produced £5378 12s. 6d., including an average of £19 12s. for 173 rams; the highest price was 140 guineas obtained for a three-shear, being the gold medallist at the Battersea International Meeting of the Royal Agricultural Society of England in 1862.

At the period we have last referred to the sheep-breeders in the counties of Devon and Cornwall had for years been good customers to the Leicester breeders, and have reared first-class animals on their own account. Mr. George Turner of Barton, Devon, had for a series of years been a successful breeder and exhibitor of pure Leicester sheep both at the Royal and the Bath and West of England Shows. The importance of this breed of sheep is forcibly illustrated by the improvement of sheep stock in Ireland. What the native sheep were like before the introduction of the pure Leicester is told with great fidelity by Mr. George Culley when he visited that country many years ago. None of the original breed that we can hear of is left, and those who may wish to see what the Leicester cross has done have only to view the eighty to one hundred thousand sheep which are annually shown at Ballinasloe Fair, than which probably no other fair in the United Kingdom can produce such a level array. The top lots, two-year-old ewes and wethers, are really wonderful sheep, and yet they have not tasted a pound of cake or any artificial food. Still, a pure Leicester flock is not suited for Ireland, as the climate is too wet for them, and they become delicate in constitution; in crossing, however, the Dishley stock "nicked" exactly with "the original natives."

We must give a few words upon the last of the old-fashioned Leicester breeders, Mr. Valentine Barford of Foxcote in Northamptonshire, whom we had the pleasure of meeting and seeing his sheep at the Royal Society's meeting at Northampton in 1847 if we recollect rightly. He was a man of sturdy self-reliance, and possessed a flock which was generally believed to be the only one in the kingdom which could present an "unbroken pedigree from the time and stock of Bakewell," and reared upon a farm which he and his father before him had held under the Dukes of Grafton for more than a hundred years. One of the principles of rearing and feeding of sheep by Mr. Barford was to select animals from his own flock only, and never to use any artificial food. They were, however, distinguished by great symmetry, were always healthy but small; nor was their fecundity impaired, although they were "bred in-and-in," as it is commonly termed. Before concluding the subject we must allude to the "Barmshires," or, as some call them, Border Leicesters, which are peculiar to the border counties of Roxburghshire, Berwickshire, and Northumberland. These sheep, and the high estimation in which they are held, is best shown by the large sums yielded by the rams at their annual lettings; for although they are not pure Leicesters they have considerably more of this blood than of any other, and are well adapted for crossing with the long-woolled breeds of ordinary stock in Lincolnshire, Durham, and other counties; and it is said that when the Border Leicester rams are mated with the various stocks of long-woolled ewes that the produce is more hardy, and give excellent quality and heavy weights at an earlier age than the pure breed on either side. Thus we must admit that the original pure Leicester, as reared by Mr. Bakewell, proved a great acquisition to the sheep stock of the kingdom.

WORK ON THE HOME FARM.

Much time has been spent in horse labour lately in carting and storing the Mangold crop, which is now generally completed; and on those farms where the couch has been carefully heaped in readiness for the purposes of bottoming the farmyard or flooring the cattle and pig pens, it has been almost the only work which could be done with advantage and without displacing other more important work on the home farm during the stormy weather of the past three or four weeks. Still, at some drying intervals a few acres of Wheat have been sown in fair condition as regards the face of the land in burying the seed and finishing the work; but with the weather which has since been deplorably wet it is impossible to say how much seed will perish, especially upon some irregular and mixed soils.

Hand Labour.—Men have lately been employed in various ways, such as filling the couch into carts for purposes as above stated. We have lately employed some of the men to examine the draining on meadow land, where the appearance indicated partial stoppage of the pipes. The same has been done on the arable land, and at the same time where a new or fresh drain is required it has been marked out for doing the first opportunity. On some fields on the mixed soils there will, after such a succession of wet seasons as we have had, be a few bunches of couch left; but this work may now be done by either women or old infirm men by using the three-grained fork. This, however, should not be delayed, but ought always to be done before the roots are fed off, as, after the sheep have trodden it into the land, it is difficult to see it, and more so to lift it without leaving portions in the land. It is also desirable wherever Mangold, Carrots, Cabbages, or any roots have been removed from the land that it should be looked over, and any grass and Docks, &c., forked out before attempting to plough or seed the land.

Live Stock.—The dairy cows will now require much attention in various ways, for on pastures which are low-lying the tread of the cattle is very injurious for either early grass or to lay up for hay next spring. The cows in milk should, therefore, get some of the Drum-head Savoy Cabbages in their pens or stalls night and morning, with a run during the daytime on very dry pasture or old lea ground. They should have also at the mangers 3 or 4 lbs. of decorticated cotton cake, and chaff of sweet Oat straw mixed with meadow hay. But one thing must not be forgotten—that every animal should have access to rock salt in their manger, as it is a great assistance in keeping up the flow of milk. The horned ewes and lambs have done well lately, although the weather has been so wet, with the exception of an increase of foot rot and epidemic lameness, for as the lambs run on to a fresh fold every day they can find a clean lair in it, whereas the ewes when fed in troughs with cut roots will find clean food; yet in lying back they have space enough to choose a lair, and in dirty weather like what has prevailed lambs will choose their lair in advance, but run through the lamb gate to suck, and return again to their fold. The tegs or hags, as they are called, if properly trough-fed with sufficient roots and hay, with cake in addition, will be doing well; but in the event of any misfortune by loss of the root crops from frost, &c., it may reach a disaster, as so much money is invested in their cost.

TUSSOCKS AND MOLES IN PASTURES.

WE have a field of old pasture which until this year has been good fine grass land, but this autumn the greater part of it is becoming covered with coarse tussocks of useless grass, of which I enclose a specimen. The field was dressed with lime and earth a year and a half ago. It is grazed, and at haymaking time any parts that seem to require it are gone over with the scythe. Our neighbours assure us that the cause of the deterioration of the field is moles, of which there certainly are many traces both old and recent exactly in that portion of the field which is now covered with objectionable tussocks. Is it likely that this is the true reason, and what do you recommend us to do?—ROBESTON.

[When the tussocks of coarse grasses prevail on old pasture land they often indicate that the land is too wet on the surface, although not requiring to be drained; yet on strong clay soils the surface may be relieved of superfluous water by a few open trenches, which are undoubtedly beneficial. These tufts of coarse grass may be cut up with the turf-cutter, and either burned or used for litter in yards or cattle pens. If burned the ashes may be spread with benefit on the land where the tussocks prevailed. There is another cause of tussocks. Frequently in sheep-feeding the animals will eat out the white Dutch Clover and finer grasses, causing them to die out, and as the cattle refuse the coarser sort of grasses they will then form into tussocks, which sheep and cattle will both refuse. If, however, such grass land were fed off by cattle only, the finest grasses and Clovers would be likely to hold their own against the encroachments of tussocks, especially if manured. We do not think that moles would produce the coarse grass unless it is indigenous to the soil thrown up by them, in which case it would be advisable to trap the moles and prevent them throwing up any subsoil. Our opinion tends to the belief that the moles may be allowed to work even with benefit if the hills thrown up were spread about once or twice in a week. In

the month of July or August 10 lbs. of permanent white Clover seed may be sown and chain-harrowed in, and if the land is strong 4 cwts. of bone superphosphate may be applied per acre. If, however, the land is gravelly or sandy white Clover and yellow Suckling may be sown in admixture, and 2 cwts. of nitrate of soda or 3 cwts. of best Peruvian guano applied per acre. We incline to the opinion that constant feeding has impoverished the land, and if sheep have not been grazing thereon that the best Clovers and grasses have died; therefore, in the case of fresh seeds being sown and manure applied, it may be well the next summer to take a crop of hay to encourage the growth of the best grasses and newly sown seed plants. But at any rate, when the tussocks have got possession they must be removed before any better grasses will have any chance to get a footing. It is a good plan in pastures to employ an old man with a barrow at low wages to continually attend to and remove twice a week all the droppings of the cattle to a heap of earth made to receive them, and form a compost to apply as manure to the pasture in the winter. The same man may then at intervals spread the molehills.]

POULTRY AND PIGEONS

SUNDAY POULTRY SHOWS.

A LONG list of poultry shows which either extend over Sunday, or, which is practically the same thing, close on Saturday night, draws our attention to the subject. We have before animadverted upon this, as it seems to us, very inadvisable arrangement. The present is a fitting opportunity for again stating our objections to it. They are, roughly speaking, that the protraction of a show over a Sunday interferes with some of the special conditions which make any such exhibition useful and successful. We will give them seriatim.

1, The first object of every show is, of course, to enable the public to see and learn what good and pure-bred poultry are, and to enable fanciers to compare their specimens. The artificial restraint of a pen, and all the turmoil involved in an exhibition, confessedly do the birds exhibited no good, and are liable, if great care is not taken, to do them some harm. All experienced exhibitors know that much depends upon the length of shows, and know to their cost that long shows are very prejudicial, especially to young birds. We believe that few fowls suffer at all from occasional exhibitions at one-day shows, and probably not many from the ordinary two-days, but directly they are confined for three or four days it is far otherwise, and every day seems to add greatly to their fatigue. Now this being the case, it is obviously useless and mischievous to keep them confined during a whole day which, from the custom of this country, cannot be one of public exhibition. So much fresh air and exercise is lost to the birds, and nobody gains thereby. We must not, however, take it for granted that there is often absolutely no reason for the arrangement. There may be in particular places special obstacles to the only show-room being spared on other days than Saturday and Monday. This is hardly likely to be frequently the case. The ordinary reason, however, given for it is that shows on Saturday evening pay. The working classes, it is said, then have money, and spend it in coming to exhibitions which they otherwise would not enter. There is some truth in this, and nowadays, when the promoters of all such undertakings have much financial difficulty, it is not to be disregarded. We contend, however, that so detrimental is long confinement to exhibited poultry that even this inducement should not have weight with show committees. If people will not come to a show on other evenings than Saturday they are not likely to be a class who take real interest in it or are likely to be benefited by it.

2, Not only is confinement trying to poultry, but still more so are long journeys and exposure. All should be done that may make their transit to and fro as easy and expeditious as possible. Saturday nights and Monday mornings never favour locomotion, and have in our own experience often proved specially disastrous to travelling fowls. It is not long since we exhibited at a show which closed on a Saturday evening. There was a clause in the schedule to the effect that all exhibitors might have their birds fed and taken care of in the show room till Monday morning. We naturally signified our wish to avail ourselves of the permission. The birds ought, therefore, to have started on the return journey early on the Monday; great was our astonishment to find them before mid-day waiting at our station, very remote indeed from the place of show. They had been turned out on the Saturday night, had waited here and there through Sunday, and, needless to say, were none the better for their travels. This is

simply an instance of the evils almost certain to result from the close of a show on Saturday night.

3, One more condition of a well-managed show is that it should be carefully and scrupulously guarded while open to the public, and that before and after opening none should have access to it but those responsible for its management. It is easy enough to keep out intruders before the judges have begun their work or while they are engaged upon it—a policeman and a locked door suffice.

Experience, however, has shown us that it is by no means so easy to keep a show absolutely closed during a Sunday when it has already been open on other days, and more than this, that practically shows are never so kept. This or that fancier who "has no time in the week" craves special permission from his friend, a committeeman, just to look round on the Sunday afternoon; another acquaintance edges himself in at the same time; by degrees there is a regular assembly, hence not unfrequently scandal if not mischief. Some years ago we were exhibitors at a show advertised to close on Saturday night and to be rigorously guarded through Sunday. We stayed in the town at an hotel facing the show hall. It never occurred to us to ask even the favour of seeing that our birds were safe and well on the Sunday in the face of so apparently rigid a rule. During the afternoon, however, we saw divers people going in and out. The town is a garrison one, and the troops seemed much attracted by the crowing; they wandered about harmlessly, would that all the visitors had done the same! At last we too followed, to find that some dastardly individual had changed some of our birds, mutilated others, and turned an almost priceless cock loose to fight up and down the rows. We have exhibited now a long while and many birds, and are pleased to say that this is the only occasion on which we have ever for certain known any wilful and malicious damage done to our birds; but then with few exceptions we have not exhibited at shows extending over Sunday.

The fact of its being difficult to keep a show room strictly and absolutely closed is to our mind a very strong argument against any show being protracted over a Sunday. There may, as we have said, be exceptions to this as to all rules. If one is to be made we should certainly make it rather in favour of a show which begins with a Sunday than one which ends with it. The Crystal Palace and Birmingham are exceptional shows—exceptional in the number of visitors that attend them, and in the time that it takes to go well through them; they are exceptional, too, in the distance that exhibits are sent to them. For these reasons there is much to be said in favour of their duration, and of their closing on Thursday evening, and consequently beginning before one Sunday, to enable all birds to reach their homes, however distant, before another Sunday. We have never, therefore, hesitated to show at them, though we have often wished that Birmingham could be shortened by one day. To the committees of smaller shows who have not these valid excuses we commend for consideration our objections to Sunday shows before the opening of another year.—C.

NOVELTIES.

AMONGST recent inventions we note some of special interest to poultry-keepers.

THE THERMOSTATIC INCUBATOR.—This has been recently introduced by Messrs. Christy. It is a continuous heating incubator with a regulator, and is thus an entirely new departure for this firm, which has hitherto depended on hydro-incubators pure and simple, and similar incubators with outside circulating boilers, only requiring heat for an hour or two daily. The new incubator claims to require a minimum of attention. The regulator consists of a band made of two metals, which expand at different temperatures, and is said to be thoroughly reliable. Upon the metal which expands at the lower heat being affected, the metal band changes from a straight line to a curve; one end being fixed the other necessarily moves, and thus operates upon a rod connected with an air valve opening from the egg-drawer, and by increasing or diminishing the amount of ventilation keeps the temperature even. The entire bottom of the egg-drawer is perforated and exposed to the air, while the ventilating shaft rises from the centre of the top of the drawer. The bottom of the water tank is slightly domed so as to allow an even flow of air from all parts of the drawer. The lamp is a small one, and the expense of working the machine is thus kept low.

WHILE speaking of incubators we may mention a novelty in the way of a reason for parting with an incubator. The machine was that known as the "Fancier," which was first described in our columns by the designer, Mr. Comyns. An extensive breeder of Game Bantams had purchased one of these machines. We heard

that he was anxious to dispose of it, and upon meeting him at the Dairy Show we asked his reasons, whereupon he declared it was simply "because it hatched so many chicks he did not know what to do with them." We have heard many reasons for parting with an incubator, but this is certainly the first time we have heard this particular one advanced.

THE OVIFER.—This novelty, introduced by the Ovifer Company, 280, High Holborn, is, as its name indicates, an egg-carrier. Its principle will be readily understood from the accompanying illustration. It consists of three wire springs securely fastened to a metal plate. The egg is inserted between the springs, and is there lightly but securely held during transit. The ovifers are made in sets ranging from one to five dozen, and are constructed to fit in boxes and baskets of various sizes, so

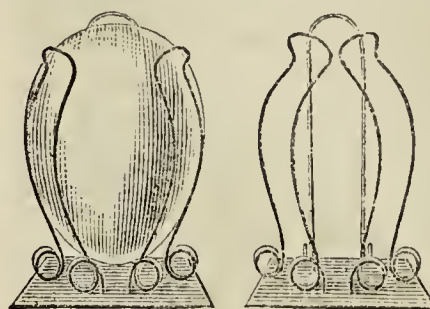


Fig. 95.

that any desired number of eggs may be packed. We can recommend them as a convenient and safe method of packing eggs.

THE EGG-PROTECTOR.—This, which was brought out towards the close of last season by Messrs. Christy, we have now fully tried. It consists of a perforated metal egg-shaped box, rather larger in size than an egg. It is intended to be used for protecting eggs which are being hatched out from being crushed by the hen, while at the same time allowing sufficient space for the chicken to emerge from the shell. We saved the lives of a good many chickens with half a dozen of these egg-protectors during the latter part of last season. It is to be noted, however, that some few hens (about one in twenty was our average) will eject the egg-protector from the nest. A little care in this respect is therefore necessary.

SALES AT BIRMINGHAM SHOW.—Messrs. Smyths' second-prize Coloured Dorking hen was claimed at catalogue price, £25, the largest price we have yet heard of for a Dorking hen. The pair of Scotch-Grey fowls belonging to Mrs. Muir, which we noted as being first in the Variety class, were also claimed at the catalogue price—viz., eight guineas.

OUR LETTER BOX.

Buckwheat (A. B. C.).—We have no doubt you will be able to grow a good crop of Buckwheat, as the land is in fair condition. This crop does not require very rich land, or it is apt to throw too much haulm for yield of seed, but in case it is required to be used whilst green as a fodder crop the ground cannot be too rich. You speak of weeds on the land; if they are not couch grass they may be ploughed under with the skim coulter and injure nothing unless gone to seed. If the land is foul with couch, and Buckwheat is grown, it should be drilled in lines 12 inches apart, and hoed between. The seed required will be 2 bushels per acre.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
December.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
			deg.	deg.			deg.	deg.	deg.	deg.	deg.	
Sun.	3	29.564	42.2	41.8	S.W.	38.7	50.8	27.4	51.2	29.4	0.056	
Mon.	4	29.097	40.9	39.2	N.W.	41.0	51.4	40.0	68.8	36.2	—	
Tues.	5	29.064	34.9	32.8	N.W.	40.6	40.4	34.3	46.8	31.2	—	
Wed.	6	29.232	34.3	33.4	W.	39.9	38.7	33.8	38.6	34.2	—	
Thurs.	7	29.185	31.5	31.5	N.	39.3	34.0	26.9	36.0	26.5	0.513	
Friday	8	29.294	35.0	34.5	N.W.	38.0	39.8	31.0	56.3	30.4	—	
Satur.	9	29.679	34.4	33.7	N.W.	37.7	38.4	30.9	59.1	30.3	—	
		29.302	36.2	35.3		39.3	41.9	32.0	51.0	31.2	0.569	

REMARKS.

3rd.—Gloomy day; rain in evening.
 4th.—Fine and bright.
 5th.—Dull and cold; slight snow at intervals.
 6th.—Cloudy; slight snow.
 7th.—Fair, frosty morning. Snow commenced about noon, and continued rest of the day, lying about 2 inches at night, all the remainder having melted.
 8th.—Bright morning; gradual thaw; snow still on ground.
 9th.—Fine throughout; sunshine at intervals; slight fog in evening.
 Temperature still below the average, considerably so on the 7th, on which day a rather heavy fall of snow occurred; in and near London much of it melted; had it not done so, it would have been nearly 6 inches deep.—G. J. SYMONS.



21st	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
22nd	F	Quekett Club at 8 P.M.
23rd	S	
24th	SUN	4TH SUNDAY IN ADVENT.
25th	M	CHRISTMAS-DAY.
26th	TU	BANK HOLIDAY.
27th	W	

DIGGING AND MANURING.

CAN anyone say whether the late very wet weather has made any converts among those who believe that the correct time to do all the digging possible is in autumn or early winter? Many must have found that too early digging is a mistake, especially where the soil is tenacious clay. Yet nearly every writer recommends turning vacant ground to the "ameliorating action of the weather." The phrase sounds well, but, unfortunately, the influence of the weather is not always ameliorating, but quite the opposite. The writer's conviction is that autumn and early winter digging is a great mistake, a cause of poor crops, and a monetary loss in many soils and districts. This is so exactly the reverse of what is generally held, that the position taken up will require to be vigorously supported and defended if converts are to be made.

It may be as well to commence at the beginning and ask and answer the question why we dig. The simplest answer to this question is, That without digging we could not grow crops. Digging breaks, and so pulverises the soil as to allow of plant roots extending and collecting their food from the soil. Moreover, in digging plant food is added and dug in, when the roots of the plants will find it. Now those who advocate autumn and early-winter digging do so because they hold that when it is done thus early the winter's frosts further tend to pulverise and break up the particles, thus making a still better root-medium. Well, I simply deny that such occurs. Do not misunderstand me. Decidedly the surface of soil that is exposed is broken up, but there is still a surface left to the action of the frost though ground is left undug. Moreover, those who turn up their soil in early autumn never have more than one surface exposed; those who wait till late winter and early spring have an opportunity of exposing two. But early digging does not result in a finely pulverised soil in spring, for—especially after such seasons as we have passed through—the rains of winter solidify the soil much more than any frost opens it. Frosts, indeed, only open and produce a surface tilth very suitable for sowing seeds in or for young plants, but so far as the body of the soil is concerned they have less effect than may be supposed.

Heavy clay soils after much rain, when dug in autumn, are often nothing more than a sea of mud in early spring, which only solidifies when drying winds come, and remain so long wet that it is often far into spring before it can be either re-dug, forked, or otherwise mechanically pulverised. Soil that is left untouched, on the other hand, but is solid save for cracks

and worm channels, such as most clays are at the end of summer, are comparatively waterproof, and instead of becoming putty-like mud, as they would if dug, remain comparatively dry. Then when thrown up, possibly in large clods, late in winter or early in spring, rain does not convert them into mud, for between the clods the rain escapes, and every wind dries the pieces till they are like the masses of lime that come from limekilns, and so easily reduced to powder whenever fairly moistened. When this occurs the lumps may be very finely pulverised by the fork, and a seed bed secured surpassing that produced by the winter's frost; while, instead of a solid body beneath, there is a friable fertile soil.

As often as not we are told that by the pulverising action of frosts and thaws plant food is liberated and made ready for the succeeding crop. To this we may reply, Is only dry ground acted on by frosts and thaws? The answer, probably, will be that roughly dug ground presents a greater surface. But we ask, Does frost only act on the surface? Then we may be told that the frost will penetrate deeper than if the soil were undug. The reply to this is that by leaving the soil untouched till late in the season the undug surface has all the advantage of the November and December frosts without being so liable to become waterlogged with the autumn rains, which wash the pulverised surface of dry soil level, so making the differences of surface extent not so great after all, but decidedly blocking the way for an easy passage of the rain downwards. Everyone knows what happens then. A dry soil by reason of its porosity sucks up much water. When solid it does not to anything like the same extent; and, moreover, an undug soil is full of worm channels and cracks by which the water escapes. If anyone doubts these facts let him, spade in hand, say in January, turn up after rain a piece of ground dug in October and a piece undug. But if we leave the digging till say January, February, or even March, we are enabled to expose first the undug and then the dug surface to the weather, and not only secure a better pulverised soil, but, so far as "weathering" will help the liberation of plant food, the spring digging surely secures the greater advantage.

There is another point, and it is this: when soil is so prepared that the surface water, instead of passing off by cracks, &c., is forced through the soil, and in its descent will carry off the nitrates so plentifully produced in autumn. The "liberation of plant food by weathering" is a parrot cry that means nothing at all by the majority who use it. It may be worth while to inquire what it is that weathering liberates. Not nitrogen, even on the most fertile soils, and hardly anything at all on soils that depend on manuring solely or nearly so. But even on soils of the most fertile description, all that can be liberated is just such matters as are not of very particular value, for the simple reason that they are likely not to be very deficient, and they are of such a nature as remain in the soil unless taken up by plant roots, and are not readily washed away; but, as we said, early digging does not secure a greater weathering. It tends, however, to the loss of what is of most value in the soil and in the market.

In manuring we add nitrogen, phosphoric acid, and potash. The phosphoric acid and potash are fixed in the soil, not so the nitrogen. Whether as ammonia or only organic matter, nitrogenous matters after the soil becomes warm in summer are speedily converted into nitrates. So long as the land is occu-

pied by a vigorous crop these are mostly utilised; but when, as in autumn, the land is bare they accumulate in the soil. These are very easily lost. Because of their solubility the soil cannot hold them, and in order to dispose of them the best plan is to dig early, and so secure the passage of rain through the body of the soil instead of by the surface and otherwise. These nitrates are very valuable, and supposing digging soil in autumn really was the best way of liberating plant food, which it is not, it would still be a great mistake.

The reasons given are surely enough to convince anyone that autumn tillage, unless in districts where the rainfall is limited, is wrong; but there is yet another. In digging, manure is generally added. Now, the most valuable part of really well-prepared manure is subject to waste when thus applied. Far better apply it later; indeed, manure to be applied profitably should be given at cropping time, or as shortly before as possible. In order to have the manure fit for this it must, of course, be well decayed; but, unless it is wasted in preparing, there is apt to be a loss in the use of any other. Fresh manure applied in spring does not give out its best qualities at the time it is wanted, but continues decaying all summer and autumn, and so a residue of nitrogen is left over that is apt to be lost. On the other hand, when manure is well made and forked or lightly dug into the soil the plants receive the benefit of it in their infancy, which is important, for a good start is a great advantage.

In many gardens crops might be raised profitably and the land improved by using no ordinary manure for a time, but only nitrogenous ones. As Liebig puts it, the strength of the chain depends on the weakest link. The weakest link in the fertility of soils long manured is certain to be nitrogen, because while the rest of the necessary elements are not liable to loss by drainage this is. The consequence is that there may be an actual surplus of everything else, there may be and often is a deficiency of nitrogen. Those, therefore, who are short of manure need not hesitate under such circumstances to give no manure at all to many things except a slight dressing of sulphate of ammonia or nitrate of soda during the growing season. This treatment often works wonders on "worn-out" flower beds. Such manures are also of much value in the vegetable garden, and greatly help the growth of many vegetables. For fruit trees they are not so suitable, chiefly because they are apt to cause too much growth of not a satisfactory character.

Much manure might be saved in gardens if "green manuring" were resorted to. If vacant plots were sown in autumn with Mustard or Rape thickly the nitrogen, otherwise lost, might be saved by being reorganised. As such green crops would save what would be otherwise largely lost, digging them down would be quite equal to an application of extraneous manure, and as they decay readily would become speedily available for immediate crops. Such have been proved of much value on the farm, but as the richer soil of the garden is much more liable to loss because of its richness, they would likely prove of even more value in the garden. Be this as it may, autumn digging certainly contributes to the loss of what we should all try to save.—SINGLE HANDED.

CHRISTMAS.

CHURCH AND HOUSE DECORATION.

CHRISTMAS is coming; and it will be welcomed more heartily than any other festival of the whole twelve months, not because it is the last of them, but because it is the recognised season of social gatherings and family reunions throughout the land. More true geniality, kindly greetings, and friendly intercourse prevail just now than at any other time; and though Christmas and its doings are like an oft-told tale, yet the heart warms to this subject, for at the very mention of it a host of pleasant memories crowd upon the mind, and the writing of a Christmas note once more is certainly no unpleasant duty.

Evergreens, symbolical of the perennial freshness of true friendship and sincere affection, ought always to predominate in Christmas church decoration. So abundant are they, and so varied in form, that combined with the dried flowers of "Everlastings" they suffice for all the requirements of good taste for such a purpose. A quiet tone of refinement should pervade our embellishment of such a building, and I must own to a feeling of antipathy for scriptural texts in large white letters on crimson cloth and all such theatrical

display. In the little church which I help to decorate the reading desk, lectern, pulpit, and seats are left untouched; a fringe of Moss and Ferns runs along at bottom of the front of the chancel seats; a richer fringe of clusters of Holly berries in circles alternating with broad stripes of Laurustinus flowers in sand is made from each side of the chancel steps to the pulpit and reading desk. The broad window sills are carpeted with Moss, upon which are crosses, double triangles, circles, and monograms of Golden Queen Holly, berried Holly, variegated Ivy and Box, Osmanthus, variegated Vinca, Diplopappus, and flowers of Laurustinus. The font alone is an exception, and has bunches of Violets upon Moss around its base, and the basin covered with Moss, upon which stands a floral cross of white flowers, Camellias or Marguerites, with a few flowers at intervals in the Moss around the base of the cross.

There are many large churches with pillars and wide bare spaces in the nave where a more liberal use of evergreens is called for. Wreaths for the pillars and trails around the doors are never more chaste than when done well with Ivy. Mixed wreaths are often very handsome, and may safely be employed when there are plenty of young people to make them. Groups of Palms springing out of mossy mounds give beauty and warmth to any bare spaces where they can be conveniently arranged, but other plants in pots are uncalled for at this season of the year.

In house decoration a much more florid style may prevail. Plants in pots cannot be too abundant in all the accustomed places. Violets and Mignonette should "scent the air with sweet perfume;" cut flowers, renewed frequently so as always to be fresh and bright in vases. To these the evergreens form our Christmas addition in the guise of sprays, wreaths, trails and festoons, just as may appear best in keeping with the furniture and permanent decorations. As a rule very little is required to be done in this direction, except in old baronial halls where armour and trophies of the chase give mutual facilities for evergreen decoration.

Berried Holly is abundant this Christmas; so, too, are the bright scarlet berries of *Iris foetidissima*, and the equally beautiful clusters of *Skimmia japonica* berries. *Cotoneaster Simonsii* has been very gay, but the birds are so fond of its scarlet berries that most of them disappear before Christmas. Moss, sometimes difficult to procure, is not so this season, as might be expected after so wet a year. Some old lodges thatched with Heather have the whole of it clothed with a soft bright green mossy carpet.—EDWARD LUCKENRST.

DEW IN HOTHOUSES.

ALLOW me to assure "CASUAL" and all whom it may concern that I have never knowingly made an offer in this Journal to answer queries privately, and that letters asking for information privately on subjects which appear in its pages are not answered. Any letter sent to the Editor breathing a genuine spirit of inquiry is sure to be duly attended to by the men best qualified for the subject which he has at command, but certainly will not be answered privately, as that is against all the rules of public journalism, and notice to that effect is printed every week at the head of the first column containing answers to correspondents. It is well it should be so. All questions have two sides to them, and when queries are answered publicly there is a chance for errors (which the best of us are liable to fall into) to be corrected. The answers to correspondents is a very strong point in this journal. They do more, perhaps, in an educational point of view than all the rest of its pages together, and I for one seldom fail to gain a lesson from their perusal, for I invariably read most of them through, and if I find anything I disagree with or cannot understand I make a note of it.

Once more, then, I have failed to make myself intelligible to "CASUAL," and if I have been as unintelligible to other readers I must of late have become less clear than I formerly had the credit for being. Allow me to say now as clearly as I can that there is no dispute as to the real cause of dew. It is always caused by the condensation of vapour on surfaces which are colder than the air containing that vapour. It is produced naturally in unheated houses as well as in the open air during certain conditions of the atmosphere, which are well understood. In our heated houses we can produce it at will almost independently of outside weather, and some of the lessons a young gardener has to learn are when this dew would be beneficial and when it would be injurious, as well as how to make it or prevent it. Your correspondent is perfectly right in following Dr. Wells as to the cause of dew-formation; for although there is much to be learned yet on the question of dew as to its chemistry and its effects on vegetation, the theory of its formation is clear enough, and cannot be materially altered; but when he quotes Dr. Lindley as an authority on horticulture he is not on such safe ground, for in matters horticultural we have been travelling fast. Lindley's time, like our

own, was transitional, the so-called facts of to-day being disputed to-morrow, and intelligent practical horticulturists to-day would be as likely to be guided in their operations by Zadkiel's Almanac as by much of the theory which Dr. Lindley taught, although he lived only a few years ago, and was one of the best men of his generation.

Your correspondent is still wider of the mark when he adds a bit of his own home-made theory. I see no use discussing the matter further with him, and indeed should not have noticed his last communication had it not been necessary to remove the impression that I was open to answer queries privately.—WM. TAYLOR.

ROSE MARÉCHAL NIEL.

VISITORS who have attended the various Rose shows held since the year 1878 must have noticed how few blooms have been exhibited of Maréchal Niel compared with the numbers they had been accustomed to see previous to the above date. It is a well-known fact that from the time of its introduction to this country no Rose made a finer display on the exhibition table than the one we are now considering. What magnificent blooms of this Rose were then placed in competition, having sometimes a class devoted to it, at others carrying all before it in classes for yellow Roses! but wherever shown in quantity it invariably caused an "obstruction," through arresting the attention of the visitors, who stopped to admire the glorious Maréchal Niels; also with what effect it told when shown in association with others, be they Hybrid Perpetuals or Teas!

Now in the majority of instances this Rose is comparatively rarely seen, and the honours in the classes for yellow Roses fall to *Perle des Jardins*, *Jean Ducher*, and others—poor substitutes for Maréchal Niel. Can this falling-off be attributed alone to the severe winters of 1879 and 1880, or is the constitution of the variety weakened in any way to account for it? Mr. G. Paul estimates its sale in the country at fifty thousand per annum (*vide* "Rosarians' Year-Book," 1882, page 59). It has been grown on stocks of various kinds, planted in every conceivable position at all likely to contribute to its well-doing; yet out of doors in the majority of instances it has proved far from satisfactory of late years.

One thing against its longevity is its predilection to canker, and when this malady takes hold of a plant there is little hope of its ultimate recovery; and, further, I am of opinion that this disease can be transmitted from plant to plant by propagation, either in the form of cuttings, budding, or grafting—hence the cause of so many serious losses from this disease, and hence the necessity of greater caution being exercised in propagating from thoroughly sound and healthy plants only. I am now alluding to out-of-door plants, as it is well known there are many places where this grand Rose is well grown under glass; but the blooming period of those is, as a rule, over before the Rose shows commence, while even under glass in some instances it has not proved a success, canker alone being the cause of disappointment. Frequently after the plant has made excellent growth for a season or two, and looks most promising, to his great disappointment the following season the foliage turned yellow and sickly, and the plant, struggling to put forth its flowers, drooped and died.

No other Rose that I am acquainted with which grows with such vigour as does the Maréchal when in good health is such a victim to so dire a disease. Can anyone suggest a remedy for or preventive of this great evil?—OXONIAN.

INSECTS INFESTING CARROTS.

SEEING that one of your correspondents finds it difficult to procure Carrots through the attacks of insects, I beg to advise him to try applications of gas tar. The first application could be given in September, and the ground well trenched to the depth of 2 feet, if the soil is suitable at this depth to be brought to the surface. If not, add a little quicklime in each trench after the first spit is taken off. This must proceed with the work, and fork it up with the bottom. Let the second dressing be given in February, choosing a time when the surface of the ground is dry; and if a dry day follows give the surface a good raking. Ten days before you intend to sow the seed draw the drills somewhat deeper than usual, and run the third lot of gas tar in these. Mix the seed in a liberal quantity of burnt earth and sand before sowing. I have been very successful in extirpating the insects by these dressings; the Carrots quite enjoy

it, and turn out fit for any exhibition table.—JOHN MacKAY, *Hammersmith*.

COLLECTIONS OF SEEDS.

IF I remember rightly, some letters appeared in our Journal a short time ago regarding the boxes of vegetable seeds as sent out by seedsmen, which showed that the writers were not altogether pleased with their purchases. For twenty years I made out my own list, which amounted to about a pound. Three years ago, by the advice of a friend, coupled with a little laziness, I bought a guinea collection. When it arrived I went carefully through it to see what advantage there might be, and found, provided the packets were the same size they would have been if ordered as usual, a gain of something like 30 per cent. in my favour. This looks very well; but I was obliged to buy certain sorts which were deficient, although there were enough of those valueless to me to sow a good portion of the garden. The reason why seedsmen prefer collections is, I imagine, because they grow certain sorts, not only for their excellence, but also for their prolific qualities. We find in nurserymen's



Fig. 96.—Pear Josephine de Malines.

catalogues—"Our selection, 6s. a dozen; purchasers' selection, 9s. a dozen." Now it has struck me that if we were to send up our wants somewhat in this way—Broad Beans, one quart in two varieties; six quarts of Peas for succession; 6 ozs. of Carrot for succession; 4 ozs. of Onions in two sorts, &c., vendors would be able to allow 15 or 20 per cent. off catalogue prices. I should like to know what Messrs. Carter & Co., Messrs. Sutton, and other large seed merchants think about it, as well as amateur and professional gardeners.—C. T. H., *Dorset*.

PEAR JOSEPHINE DE MALINES.

WE figure this fruit with the object of drawing attention to what we consider one of the finest winter Pears in cultivation. It should be planted in all gardens where late Pears can be grown. In the south the trees bear well in the form of pyramids, but are finer from walls, and a tree is worthy of a good position everywhere. Its time of ripening varies greatly. We have had it firm until April, but sometimes it ripens in December. In the cool fruit room at Chiswick it is ripe now, and no Pear in the collection is more delicious. On the question of ripening we append

the following timely and suggestive letter from "WILTSHIRE RECTOR:"—

"Having lost my whole gathering of these Pears last year, owing to my not looking at them until after Christmas, as they are not due until February, I thought I would at any rate be in time this year, and so examined them in the middle of November, when I was surprised to find that some were almost ripe. I brought them at once out of the cold fruit room into a cupboard in a room where there was a fire, as I felt sure they did not need any greater heat such as I apply each year to Bergamotte Esperen. My surmise was right. From that time (November 16th) until now I have been eating them daily, none lost from over-ripeness, but coming to table in rotation, and I never tasted this Pear of finer flavour. I quite endorse Mr. Smee's opinion that 'Josephine de Malines is, of late Pears, unrivalled in juiciness and flavour.' But I add this note of caution—Watch your Pears, or you may lose them altogether. If you trust solely to even the best of catalogues or manuals that tell you this Pear is in season from February to May, still there may come years when their period of ripeness is November to late in December. I would ask, Have other fruit-growers noticed this change of season, and what can be the reason why a Pear should be ripe three months before its time in spite of its being kept, as I have said, in a cold fruit room?"

[We suspect it will be difficult to explain the matter, but shall be glad if a solution is forthcoming. There is, however, this satisfaction—the fruit is excellent at whatever time it ripens, and few persons can err by growing Josephine de Malines.]

WINTER v. SUMMER PRUNING.

I MUST confess to having been educated in a somewhat antiquated school of gardening, especially as regards pruning. The custom was to prune hard in winter with a view of imparting vigour to the trees, and particularly to the fruit buds or the spurs; whilst those trees that produced fruit on last year's wood, such as Peaches and Nectarines, were cut in very sharply, out of a length of 2 feet or more barely a third of it was left after pruning for producing fruit or to insure growth for future crops. Summer-pruning was little practised. True, an attempt was made to shorten the forerights some time after midsummer, and the disbudding of Peach trees was of course attended to, yet the chief of the pruning had to be done in winter. The trees seemed to like it in so far as their power for making wood were concerned, giving a crop of shoots in summer quite equal to that removed at the previous winter pruning, and the trees had (as "JOHN BULL" so forcibly brought before your readers in a recent volume) a grand appearance—fine trees covering I know not how many yards of wall, and in good seasons bushels of fine fruits were looked for as a certainty. "This, of course, was long before the Quince and Paradise stocks had come into vogue," some may say; but it was not, for there were then those, but not in such numbers as we find them at the present time, and yet there were dwarfs, Apples on Crab stocks bearing as freely as giants in the adjoining orchards; therefore we may dismiss the supposition that gardeners some few years back knew little of the restrictive as opposed to the extension system. In their bushes, espalier, and wall trees they practised the former, and it is doubtful whether the old practitioners were not right in allowing a fair amount of summer growth. An excess of summer growth deprives the fruit and wood for future bearing of the light and air essential to their development, as root-action is thereby stimulated and the supply of nutriment is out of proportion to the demands; but a moderate summer growth maintains a healthy reciprocal action between the roots and head—the fruit swells freely, and the bloom buds are thoroughly developed. Trees on the restrictive system are, in the case of vigorous examples, in no better plight than those allowed to make an excess of summer growth, as no amount of pinching will transform the unduly vigorous growths into fruit buds. Root-pruning may, close pinching will never do so. A moderate extent of new growth annually appears necessary for maintaining the trees in health and fertility, and it does not matter whether the superfluity be removed during growth or when the trees are at rest.

But I shall be asked if there is really no difference between winter pruning and summer pruning. My answer must be, Decidedly none. An over-luxuriant tree is not to be brought from a barren to a fruitful state by either winter or summer pruning. A vigorous tree pruned hard in winter is a mass of strong spray in summer, and on one closely summer-pruned clusters of growth break again quickly after stopping. The remedy in both cases is identical and threefold. First, extension, so as to bring the head into action with the roots; secondly, root-pruning, so as

to limit the supply of nutrition proportionate to the head; and thirdly, re-grafting. All of these are effectual in restoring unfruitful trees, especially the last—a practice by no means so common now as it was in old times, when if any tree had outgrown its space, and for want of room giving nothing but unfruitful growth, it was headed down and re-grafted. How often do we see trees which require extension to render them fruitful allowed to remain year after year without anything being done to rectify the evil, whereas re-grafting would restore them to fruitfulness in nearly as little time as root-pruning, and assuredly with greater certainty, no trees producing such fine fruit as that upon the wood of the first years of fertility.

Winter pruning and summer pruning are identical. Both mean the removal of parts not necessary to the symmetry of the trees, and as regards fruitful trees serve no other purpose whatever, as is evidenced by trees left to assume their natural form in orchards. If there is any advantage to the crops of fruit it must be obtained more from the winter than the summer pruning. The value of foliage in enhancing the size and quality of fruit is exemplified in trees both on the dwarfing and free stock which have attained an age that very little if any growth is made beyond that necessary for the formation of spurs or fruit buds. This may not be the result of age naturally, but by the food supply not being in excess of the requirements of the tree for fruit-production, for the less are the supplies of food the greater will be the effort on the part of the tree to fruit. These trees are yet the most disappointing of all. The blossom is very profuse and beautiful, but not unfrequently they do not set a single blossom. Why? The balance between the head and roots is so even that support is not forthcoming equal to the demands of the blossom, simply because there is no leaf or wood-bud growth to excite the action of the roots or to draw up sap for the expanded blossoms; or it may be that the blossoms are imperfectly developed in embryo in the previous autumn, and this, too, from a deficiency of alimentary matter. If there is a good set of fruit many drop in stoning, and the spurs thereby liberated give the tree strength enough to perfect the fruit remaining and form fruit buds for next year; but if all the fruit remain, the tree is so weakened by the year's crop that very few, if indeed any, of the spurs develop into fruit buds, whilst the fruit, unless thinning has been resorted to ungrudgingly, though great in numbers is inferior in both size and quality.

The remedy in their case is to prune to induce the production of fresh wood—increased supplies of nutrition by lessening the number to receive it—through well thinning out the clustered spurs; which, by affording more sap than can be appropriated by the fruit-bearing parts, will cause wood growths to be made, alike benefiting the present and future crops. Heading-down, either for re-working or training up fresh growth, will be attended by similarly favourable results. The great aim of pruning is to preserve the symmetry of the trees and make them adaptable to certain positions, but to think that pruning ever was instrumental in causing barren trees to become fruitful is a mistake.

Winter pruning may consist in thinning out the spurs and cutting back any that have grown so as to be at a distance from the base, which will admit more air and allow space for fresh growth, increased vigour, and finer fruits. In the case of trees neither too strong nor too weakly it will not be needful to cut back the summer shoots, stopped or otherwise, and not terminated by a fruit bud or a spur for forming one to a bud at its base. To prune trees in winter that make too much wood, and in consequence are unfruitful, is erroneous. Extension is needed, not curtailment, the head being left intact if space permit, and the roots pruned instead of the branches. How frequently do we see pyramid and bush trees cut into fashion and out of fruiting, which is left to themselves would convert the previous year's growth into fruitful buds, and give a heavy crop the following year. Once get a tree into bearing, and it will give little use for the knife; thinning, shortening back, and the removal of superfluities or irregularities will be all that is necessary, performing this in winter if the trees need vigour, in summer if too vigorous.

This brings me to the point I started from. Everybody has, or ought to have, a garden, and what garden is without its Gooseberries? I had a quarter of Gooseberries, beautiful bushes, making splendid shoots every year, which were spurred-in every winter, and they bore splendid crops of grand leaves, the shoots armed with glorious spines. The scantiness of crop was attributed to too rich soil, but the manure was given as usual, and the only thing laid aside was the knife; not a shoot was shortened nor one thinned out. The result was nearly every bud produced one or more berries, and by the time they were fit for tarts it caused some anxiety as to how the fruit was to be gathered, the shoots were so close and the spines so menacing. The heads were the

usual straight sticks disposed around the stem, and these had become quite closed up. These bushes happened to be those from which dessert fruit was taken and none gathered for tarts. The weight of fruit opened the heads, there were no longer any fear of difficulty in gathering. Every bush had to be staked and tied with tar band. This has been repeated every year since, and the only use now found for the knife in that quarter is in thinning old growths and encouraging new.—G. ABBEY.

CHRYSANTHEMUM KING OF THE CRIMSONS.

WHETHER this variety of Chrysanthemum should be placed in the reflexed or Japanese section is one of those questions that is not likely to be settled to everyone's satisfaction by simple argument. I have never attempted to force King of Crimson into the Japanese section. In my catalogue I give what I consider a full description of the flower (in the body of my catalogue it will be found classed as a reflexed); and in remarking that it is as much a Japanese as *Triomphe du Nord*, &c., I think the six blooms shown by me at the Aquarium fully justify. They were very generally admitted to be superior to many of the so-called Japanese, and it seems strange that the Judges should give a certificate for it as a Japanese, and the Royal Horticultural also, without it having some qualification to that distinction. It was very natural that "D., Deal," in making notes on the Show should follow the Judges' classification. I would rather have had it certificated as a reflexed, for my opinion is not that we should add such varieties to the Japanese, but place them all in the reflexed class, and so keep the classes more distinct. Now that we are about to have an election of the incurved varieties perhaps it will be followed by the same with the Japanese, which would afford a good opportunity for making a division of the two types. New varieties would then follow more in their proper class, especially as reflexed flowers are coming to the fore.

That King of the Crimson is not new we all agree. I heard of it many years ago, though I never had stock of it till Mr. Molyneux, a famed Hampshire grower, brought it from Liverpool some four years since, and kindly gave it me to send out, so that it is to Mr. Molyneux that thanks are due for King of the Crimson being again placed in commerce. It is a magnificent flower, and ought to have been seen at our large public shows long ago.—N. DAVIS, *Warner Road, Camberwell*.

KING OF THE CRIMSONS was grown by the late Mr. J. B. Whiting at the Deepdene, Dorking, about the year 1850. It was grown there for several years, but discarded to give place for *Julie Lagravère*, which has a much better habit for specimens; therefore, to my knowledge King of Crimson has been in cultivation for over thirty years, and is certainly not a Japanese variety. Several varieties of recent date have crept into the Japanese section, such as *Duchesse de Gerolstein*, *Illustration*, &c., that are poor reflexed varieties, and in no way like the true Japanese type.—J. BROWN, *Great Doods, Reigate*.

THE CUCUMBER DISEASE.

THIS curious disease appears to baffle cultivators in different parts of the country, and I felt much interested in both Mr. Taylor's and Mr. Gadd's remarks concerning it, as I, with many others in this part of the country (Hunts), have suffered by it. With me its appearance is similar to that described by Mr. Taylor, the fruit being inclined to curl and covered with numerous gummy exudations. I also notice in the young stems and leaves before the fruit are attacked small dark spots, as if it is some kind of fungus, as I have no doubt it is.

My experience of it dates from May, 1881. In a span-roofed house about 30 feet long we had been having a good supply for the previous three months, when I noticed small black spots on the tips of the fruit, causing them to curl and not develop satisfactorily. I had heard of the disease being within a few miles from here the summer previous, though I had not seen it, and at once concluded it was the much-dreaded pest. The plant first infested was cut out and burnt, but in a few weeks all the plants were diseased. All the small fruits as soon as noticed were cut off, for, like Mr. Taylor, I could not well afford to remove them until I could raise a stock from a new source. This was done. Young plants were raised in a house where Cucumbers had not been grown for four or five years, and then planted out at the end of June in dung frames, two large new three-light frames being employed for the purpose, newly painted. But to my alarm, as soon as the fruit appeared the black spot and gummy exudations followed, and only about a dozen clean Cucumbers

were cut from these two frames. These were situated about 30 yards from the Cucumber house. Again new seed was obtained from another source, and the plants placed out in a span-roofed pit that had generally been used for small miscellaneous greenhouse plants, but with the same result—no good Cucumbers again that year.

Not only were Cucumbers so affected, but Vegetable Marrows also, one bed near the frames above alluded to being the first to show it; then another in the kitchen garden towards September, and 70 or 80 yards from it. Melons did not have a trace of it, although growing in the next house to the Cucumbers. Of course all the growth was cleared and burnt as soon as possible, and all the soil taken out of the house and frames was wheeled as far away as possible. Sulphur and tobacco powder were burnt, and paraffin used freely about the walls, glass, and woodwork, and not a Cucumber plant or any plant of the Cucurbitaceæ family was in the garden from the end of October till the following March.

This year we have been a little more fortunate, having cut six times the quantity of fruit, but not so early in the year by two months. It, however, made its appearance in September both in Cucumbers and Vegetable Marrows, and a bed of about thirty plants of the Stockwood Ridge Cucumber in a favoured position as to soil and aspect in the kitchen garden, more than 100 yards away from the others, also had it badly, not a good fruit being obtainable from them. With these I did not notice it till after a week or two continuous rains we had about harvest time. I had also noticed that with plants in frames and houses dull wet weather favoured its spreading more rapidly. Raising the temperature of the house 10° by fire heat checked it considerably, but failed to stamp it out.

Although in Mr. Gadd's case soil is noted as the primary cause of the disease, one singular case came under my notice this season where a friend had been cutting good Cucumbers for two months up to May. They were then infested with this disease, and the plants were cut off level with the soil; new plants obtained from a fresh source, and planted in the same material that the diseased plants had been growing in, were watered and top-dressed as required, and no disease appeared all the rest of the summer, although within 50 yards a bed of Vegetable Marrows were growing attacked badly with it, the gardener going daily to it, and in and out of the Cucumber house several times during a day.

Another man not far from here, who sends Cucumbers by the hundred to market, had a few plants affected by this disease last spring; but he told me that raising the temperature considerably by fire heat checked the evil, although it did not cure it. The cost of extra fuel in weather when it is reasonable to suppose it could be dispensed with is a serious item for the market grower, increasing the cost, and thereby reducing the profits.

This subject cannot well be too much discussed in the gardening press, as any cure for this most troublesome pest would be a boon to many gardeners, their employers, and the general public.—A. HARDING.

GARDENING PAST AND PRESENT.

A RETROSPECT is always pleasing when it traces a steady advancement, and nothing shows this in a higher degree than gardening. We do not need to go back to the gardens of antiquity to see this, for it has had full proof in our own day. Gardeners love their profession, and an old gardener is never better pleased than when relating to the juveniles of his craft the incidents of his bothy days, and how differently work was done then. Instead of rising at four o'clock on a dewy morning to mow the lawn with scythes, as our fathers did (aye, and some of the first of modern gardeners), we see the machine drawn by a pony in all the glory of leather boots, leaving a surface so smooth that it outrivals the best carpet.

But herbaceous plants shone the brightest in the past. The taste for them is reviving, but it will be long ere we see them firmly reinstated in their rightful place. Modern taste allows them because they are fashionable, and so they are bought and planted. I do not write this unguardedly, for I have seen excellent collections proving little better than an eyesore. In old gardens the herbaceous border was a centre of interest, and there were few gardeners but what possessed an herbarium of their own collecting. The introduction of so many tropical plants has lessened the interest of the herbaceous border, and placed it in the houses, but even those who most love the old style will own this is a great step of advancement. Good though the pleasure grounds of the past were, how much better are those of the present, with the many ornamental trees and shrubs that collectors have sent us from all quarters of the globe!

Grape-growing, always an important branch of gardening, never before reached such a state of perfection; but where now are the Pine Apples that used to have so much attention? Except in a few establishments they are not grown, and in the weekly calendars of the gardening papers, where they so long held the place of honour, they are seldom mentioned. Kitchen gardening has been always well done, but I question much if ever better vegetables were grown than now; at least there were not so many varieties to assist gardeners in lengthening their season.—J. MACDONALD.

AIGBURTH BRUSSELS SPROUTS.

A YEAR ago your esteemed correspondent Mr. Iggulden remarked that the above much-praised variety had, with him, in good soil, grown too strong, and produced sprouts so large, open, and coarse as to be unacceptable, and asked correspondents who had grown it on poor soil to state whether the produce was satisfactory. As far as I can remember no one replied, presumably because all who had had fared similarly to Mr. Iggulden. That was what was done here; but this year plants were put out early on very indifferent soil, but still the results are unfavourable; so much so, in fact, that it never will again be grown here. The imported will be again resorted to, although a per-centage of such also comes useless. The fact seems to be, that Brussels Sprouts tend to revert to the type from which it sprang.—S. D.

FLOWERS OF THE PAST SEASON.

WITH me the past season has not been one of the most favourable for plants in the flower garden; and being reminded of the approach of another season, I wish to say a few words respecting some that have exceeded my expectations.

Gaillardia plectrantha Lorenzana.—Seeds of this were sown in heat, grown on as required, and planted out at the usual time, proved an acquisition both for beds and borders. It produced its variously coloured flowers through the summer until the frost stopped them. It is of dwarf habit, and was much admired by all who saw it.

Linaria reticulata aurea purpurea.—Another very choice dwarf annual. Its beautiful flowers are very attractive, and with care in cultivation it proves a useful plant for beds and borders. If intended for bedding, the plants should be pricked out singly and moved with a ball to their destination; but I prefer placing them singly in small pots. It seems to be at home everywhere in a garden.

Papaver umbrosa.—One of the richest crimson flowers we possess. It is treated as an annual, the seed being sown in the autumn and the young plants thinned to a few inches apart. It stands through our ordinary winters sown in spring, and we have a continuous display through summer and late autumn.

Verbenas.—I find these are much better grown from seed than from cuttings. The seed should be sown in heat in early spring, and grown on. Planted out at the usual time I had a splendid bed of mixed colours of all shades. I intend in the future to rely on seed for my supply. By so doing I shall economise time and space. Through the winter of late years I have found it a difficult matter and almost impossible to succeed with plants and cuttings through the winter.—P. U.

OF HUMUS.

(Continued from page 547.)

IT is apparent from the facts cited in the letters which I have already addressed to you, that humus is not a direct food for plants (on which some obscurity still rests, high authorities ranging themselves on opposite sides on the question), there can be no doubt whatever that the functions performed by it in aiding the nourishing properties of other manurial constituents are most important. In the words of Liebig humus, as well as chloride of sodium, nitrate of soda, salts of ammonia, &c., "besides the action peculiar to their elements, perform also a kind of digestive function comparable to that of the stomach in animals, and in which they may partly replace each other. These substances, therefore, act beneficially upon those kinds of soil only in which there is a defect, not in quantity, but in the form and condition of the nutritive elements. They may, accordingly, in this permanent action be replaced by a mechanical comminution, or exceedingly fine pulverisation of the soil.

"The term 'manure' is commonly used to designate all matters which, applied to a field, will increase the amount of its future produce, or when the land has been exhausted by cultivation will restore its capability of yielding remunerative harvests. Manuring

agents act partly in a direct manner as elements of food, and partly, like common salt, nitrate of soda, or salts of ammonia, by enhancing the effects of the mechanical operation of tillage, so that they frequently exert as favourable an influence as the actual increase of the nutritive substances in the ground."—(Liebig's "Nat. Laws of Husbandry," p. 131.)

"For corn and summer plants, in order to obtain a maximum of produce, the presence of organised matter in the soil is of the utmost value. By the addition of sawdust the effect of the mineral manure was strikingly augmented, and it appears to me to be clear that the chief cause of this increased action must be looked for in the carbonic acid formed by the decay of the wood, which in this case acts not nearly so much as a source of carbon as by its solvent power for the earthy phosphates, and by converting into bicarbonates the neutral alkaline and earthy carbonates, and by rendering the silicates soluble. This carbonic acid is the condition furnished by Nature for the passage of these necessary parts of the food of plants into their organism, for the earthy phosphates and carbonates are only soluble in water when the water contains carbonic acid. The carbonic acid contained in rain water is obviously not sufficient to bring into the soluble form, which alone is fitted for assimilation by vegetables, the proportionately large amount of mineral substances absolutely necessary for a maximum development in summer plants, such as grain, during the short period of their growth. It is well known how great is the effect produced in this way even by moderate rains; and we may easily calculate how greatly this action must be increased by the addition of carbonic acid, whereby the solvent power of rain water for these mineral substances is augmented a hundred, nay, a thousandfold. The carbonic acid of ordinary spring water, which often retains in solution such considerable quantities of inorganic matter, proceeds from the same source—namely, the decay of organic matter in the soil."

"If to one acre English we add 8950 lbs. (about 4 tons) of the ashes (or of the ingredients of those ashes from other sources) of Wheat, Potatoes, &c., this large supply only suffices to give to the soil of the whole surface, to the depth of one foot, these materials in the proportion of 1 grain to each cubic foot. This is much less than is contained in a cubic foot of tolerably fertile soil; but, on the other hand, much more than is required for one crop. But since only that part of the manure acts which is in contact with the fibres of the roots, it is easy to see why so much must be given at first. It would appear, then, that in many cases the chief effect of manure on our fields consists in this—that in consequence of the more abundant nutritives in the upper crust of the field, the plants during the first period of their growth push out ten times, perhaps a hundred or a thousand times, more root fibres than they would have done in poor soil; and that their subsequent growth is in proportion to the number of those organs, by means of which they are enabled to search for and assimilate the less abundant food in the deeper strata. This may explain how a quantity of the constituents of manures—ammonia, alkalies, and earthy phosphates—so small in proportion to the same matters diffused through the soil, increases the fertility in so remarkable a degree."—(Note, Liebig's "Fam. Letters," p. 512.)

And here we may fitly refer again to that last important office of carbonic acid to which I alluded briefly at the conclusion of my last letter (p. 546); and, as in my first letter on humus (p. 472) I objected to the interpretation which had been put upon Liebig's theory by S. W. Johnson, I will call the attention of your readers particularly to the mode in which Liebig expresses himself, when it will be seen that he carefully distinguishes between the insolubility which arises from the natural chemical insolubility of a substance and that attractive force which the soil, like charcoal, exercises, for example, upon colouring matter, and which "is about on a par with the feeble affinity of water for salts which are dissolved by it, but without alteration of their chemical properties." The matters attracted "merely lose their solubility in water." The surface attraction which brings this about is therefore termed by Liebig "physical attraction." "In this state of physical combination," he says, "the alimentary substances are manifestly in the most favourable condition to serve as the food for plants, for it is clear that the roots in all places where they are in contact with the soil will find the necessary substances . . . retained in the soil by so slight a force that the most trifling solvent cause brought to bear upon them suffices to effect their solution and transference into the plants." "The evaporation of water from the leaves produces a vacuum within the plant, whereby a draught is created which powerfully assists the contact of the moist earthy particles with the cell wall (at the extremities of the root fibres). The cell and the earth are pressed against each other. Between the fluid contents of the cells and the nutritive substances physically combined in the earthy particles

there manifestly exists a strong chemical attraction which, with the co-operation of carbonic acid and water, causes the transference of the incombustible matters into the system of the plant."—(Liebig's "Laws of Husbandry," p. 71 and p. 86.)

In this action of carbonic acid we have my last argument in favour of the manurial action (using the term in its widest sense) of humus, and I am unable to see anything more than an apparent verbal contradiction between the two theories of humus to which S. W. Johnson calls attention (see p. 473).

In conclusion I have only to sum up the various modes in which humus exhibits its agricultural value.

1, As an absorbent of moisture, which materially increases the fruitfulness of a soil.

2, By attracting and physically fixing ammonia, which would otherwise be washed away.

3, By chemically fixing ammonia by the aid of the acids which are generated as its decomposition proceeds.

4, By providing a long-continued, if feeble, supply of carbonic acid, which helps to distribute the phosphates, &c., which are imperfectly disseminated through a soil.

5, By assisting, through the disintegrating influence of the carbonic acid which it generates, in breaking down hard insoluble substances containing potash and silicic acid, &c.

6, By supplying carbonic acid to bring about the transference into the organism of the plant of the food with which the rootlets come into contact.

I would ask, then, whether these properties are not of sufficient importance to justify our agricultural chemists in allowing some money value for humus as such?—INQUIRER.

FRUIT AND JUDGING AT EDINBURGH.

MANY times previously I have contributed my thoughts in regard to some rule being authoritatively laid down in order that judging at horticultural shows might thereby be rendered more uniform. Let me premise that with grumblers I have slight sympathy, and not so much because they may not have some reason for their fault-finding, but because they seem to be satisfied with that one privilege and seldom take any other step to secure a more excellent way. It is well known to an exhibitor before he stages his produce that his exhibits risk being submitted to no better tests than the likes and dislikes of some person not better able to judge than himself.

At Edinburgh one of the things that pleased me most was the courtesy of the Secretary, next the attractive groups of plants staged for effect, and next very fine collections of Apples. With the Grapes I must own that I was somewhat disappointed. I could not get away from the thought that Grape-growing "with the lions" had not advanced since the Manchester show some ten years previously, though perhaps it might be quite as true that, generally, Grape-growing had progressed. At the show, save pairs of bunches, I could not find one perfect stand. In the collections it was plain that great difficulty had been experienced to secure bunches of uniform merit. The staging, too, was faulty. I once previously was anxious to show at Edinburgh, but on examining the schedule I discovered that Grapes must be exhibited on stands not higher than 6 inches at the back, and I refused to submit to any such foolish rule. Uniformity is desirable, and especially in the staging of Grapes grown by various competitors, as this secures a sameness being all but impossible. Had the Committee carried out the spirit of the rule that I have condemned by having had sloping boards fixed, padded, and covered, and requested that each exhibitor removed his Grapes from his own stands to the uniform stand provided, then I think the Grapes would have made a most magnificent display, which otherwise they failed to do. And this change would have included other desirable conditions, which it is unnecessary at present to further particularise.

Unfortunately, I took no notes at Edinburgh, but from memory I shall just run through the few stands of Grapes, and then I shall again propose a system of judging which if followed out would, I think, not only secure merits being more uniformly recognised, but form a source of increased interest to exhibitors, also to others interested, and do much to allay grumbling, as exhibitors would then see the reason of being passed by. On the evening of staging, after only a glance, I concluded that chief honours would be secured by either Mr. Kirk or by Mr. McKelvie, and that Mr. MacIndoe and Mr. Hunter would have a sharp run for third place. After a more careful examination next day the judgment I had arrived at I considered had been hasty; and that, though there was not much advantage to boast of, still that the awards arrived at by the Judges were justified. Had Mr. Kirk picked his stand of twelve bunches for his six I think undoubtedly

he would have won the six; but this he failed to do, and lost the prize. Mr. Hunter's Gros Colman and Golden Champion in his twelve were superb. Here he decidedly surpassed Mr. MacIndoe, as did Mr. MacIndoe surpass him where they again showed the same varieties—Gros Guillaume and Trebbiano. Next, Mr. MacIndoe staged two fine bunches of Black Hamburgh and in fine condition, whereas Mr. Hunter staged two equally fine bunches of Muscat of Alexandria, but which were past their best; and here it was that I think the award was gained, as Mr. MacIndoe's Mrs. Pince decidedly required time, whereas Mr. Hunter's better-ripened Alicantes were not at all such handsome specimens as he has previously exhibited. Mr. Kirk's pair of Muscat of Alexandria were decidedly weak, as were his otherwise handsome bunches of the Duke of Buccleuch weak, they having so many stoneless berries. Great credit was, I think, due to Mr. Kirk for his staging less showy bunches and depending on higher-class Grapes; but there the matter ends, as we have no rule that prefers one variety of Grape to another when equally well grown. Of Mr. McKelvie's exhibits I find that my memory does not justify further criticising them, though I well remember that with daylight my first very high opinion was partly modified.

Regarding awarding the Veitch Memorial medal to Mr. MacIndoe's two magnificent bunches of Gros Guillaume, I much regret that I could not agree with the judgment. That probably more credit was due to the ability that presented to us such produce I readily admit, but a weak spot that may reasonably be passed over in a collection when presented to us in a single exhibit I quite as earnestly contend judges are not justified if they ignore it. With the poor quality of the Grape as already alluded to, there being no recognised classification of merit, judges have nothing to do, but for such an award the nearest to perfection was necessary, which these bunches were not, as they had been cut some weeks too soon, and that this award was necessary to justify the other award I do not for a moment admit. The stand was undoubtedly first, but when closely examined this lack of finish was discernible enough, and there were other pairs of black bunches certainly without a fault. Mr. Hunter's Gros Colman, Mr. Johnstone's Alnwick Seedling, and I know at the time I examined other pairs of black bunches without a weakness visible. Had I had the giving of the prize the many meritorious exhibits that were otherwise necessarily passed by, in any of them where I could have discovered an equal justification, they would have been remembered. When it rains it frequently pours I grant, but enough is the more excellent way for all that.

Next, as to my suggested rules of judging. I contend they are plain, easily understood, and if the system does not promise to supersede the present system, then pray let others who are interested point out where they fail. On each exhibit I would lay cards similar to the following—

COLLECTION OF SIX DISHES OF FRUIT.

Fruit admissible.	Points allowed by Committee.	Points awarded by Judges.
1 Pine	10	9
2 Grapes	8	8
6 Peaches	6	5
6 Nectarines	6	—
6 Figs	6	6
1 Melon	6	6
6 Plums	4	2
6 Pears	4	3
6 Apples	4	1
1 quart Strawberries	4	—
1st card		40
2nd card		41
3rd card		38
		119

Judge's Name—A. B.

N.B.—The Judges are requested not to compare their cards or to add up the points. This duty will be performed by the Secretary, and by him the prizes awarded accordingly.

And not that I stipulate for the points I allow, for I am not in any way wedded to any particular allowance of points; generally what is made beforehand is fair. Each judge would then take one card, and after seeing the number of points allowed by the Secretary for fair specimens of each exhibit admissible, then on the blank space they would fill up according to their individual judgment, put their initials or names to the card, and then pass on till all was judged. We have a plurality of judges to prevent

oversight; by my system, in addition to this guarantee, we would secure to each exhibitor really what was each judge's opinion. More I dare promise: this opinion within the reach of all, as the judging cards would continue to lie on the exhibit, would be an attraction and a boon highly appreciated. To follow judges about the show requesting their reasons for their award is at all times a most unpleasant proceeding, yet I think it is but fair that an exhibitor should be reasonably satisfied when he, and probably friends, fail to discover the reason why other exhibits are placed in a higher position. My pleasure at witnessing this grand Show had much of its lustre obscured by my coming into contact with gardeners who stand high in their profession who were making loud complaints regarding the judging. My cards undoubtedly would tend to mitigate this most regrettable state of things, as judges would then not only have to give their opinion on every separate dish or plant, but leave such opinion to a following searching criticism.—JOSEPH WITHERSPOON.

ODONTOGLOSSUM HALLI.

IN reply to the letter signed "SINGLE-HANDED," as to whether his plant of *Odontoglossum Halli* has attained its full strength, I may say I have two plants of that *Odontoglossum* three years old. One has one lead, the bulb measures $6\frac{1}{2}$ inches long and 5 inches in circumference, the leaves $24\frac{1}{2}$ inches long by $1\frac{1}{2}$ inch broad. This measurement is from the last growth, which is considerably stronger than any previous growth made. The plant is grown in a 7-inch pot in a compost of broken crocks, peat, sphagnum, and charcoal. It has an abundant supply of water all the year round, and is showing a flower spike as thick as a goose quill. The pseudo-bulbs are glossy, vigorous, and healthy, and though the plant is grown in a low temperature all the year round nothing could look healthier. The other plant has two leads and is showing spikes, and is almost as strong as the first. I have some plants of *O. cirrhosum* almost as good, but the pseudo-bulbs instead of being long are rounder or obtuse.—A. J., Leek.



IN accordance with a frequently repeated request for an ELECTION OF CHRYSANTHEMUMS we have taken steps to procure returns from the chief growers and exhibitors throughout Great Britain. The incurved varieties have been selected first, and all who wish to take part in the election should apply to the Editor at once for a form, which has been prepared to aid in carrying out the object in a convenient and systematic manner.

— MR. F. C. PAWLE, Northcotes, Reigate, desires us to notify that the Reigate Rose Association have fixed their Show next year for Saturday, June 30th.

— RELATIVE to the POISONOUS NATURE OF LABURNUM SEEDS "P. L." writes:—"During the time I was journeyman at Harewood House, the Earl of Harewood's near Leeds, several swans were poisoned by eating ripe Laburnum seeds falling into the lake. That was either in 1868 or 1869, and his lordship then had all the Laburnum trees cut down that were near the lake."

— MR. BROWN of Great Doods recommends the following as late WHITE CHRYSANTHEMUMS:—"Princess of Teck, very good; Mrs. Kaims, creamy white; Blonde Beauty, blush white. The above are incurved varieties. The following are Japanese—Meg Merrilees, lemon white, very useful; Sarnia, pinkish changing to white, very good and late; Ethel, very fine late white; Bouquet Nationale, beautiful fringed white. The above varieties are all good if well grown, and will flower until the middle of February if grown naturally and not thinned for show blooms."

— MESSRS. H. CANNELL & SONS of Swanley exhibited several plants of the new DOUBLE BOUVARDIA PRESIDENT GARFIELD at the last meeting of the Royal Horticultural Society,

and though the Floral Committee did not honour the variety with a certificate, such a recognition would have been well merited. The flowers are double and similar to Alfred Neuner in form, but they are of a pale rosy shade, varying slightly in depth of tint, though perfectly distinct from the pure white of the other double variety.

— THERE appears to be considerable room for the employment of ELECTRIC LIGHTING IN CONSERVATORIES; and though at present only occasional public experiments have been made in this direction, there is no doubt that it will become more general. As an example of trade enterprise in this direction we recently observed that a florist at Brixton is lighting his show house, a conservatory of moderate dimensions, with a large electric lamp, which shows the groups of plants to excellent advantage. With Palms, Ferns, Dracenas, and Crotons are associated Poinsettias, Euphorbias, Cyclamens, Primulas, Tulips, and other bulbs, a tasteful display is produced that is much more effective at night than in the day during such dull weather as has recently prevailed.

— A CORRESPONDENT writes that "CHRYSANTHEMUM ROSA BONHEUR is one of the most useful grown. It does not exceed a height of 2 feet, and is therefore useful for stages. It is one of the Japanese kinds, and the colour is a bright pinkish lilac. Ethel is again useful as a very late white, though perhaps a cross with Elaine might produce something much better. These have flowered with a number of other good kinds in the Cambridge Botanic Garden. In that establishment a plan has been adopted this year by which a good display has been made without trouble or much labour. Instead of growing in pots some good clumps were carefully lifted of the Pompon kinds and placed on the floor of a greenhouse, where by a few stones the soil was kept together in a bed, so that no check was sustained by the plants, the result being a larger quantity of flowers for cutting, in addition to the extra display obtained. This plan is one that might often be adopted with advantage."

— "R. L." writes:—"THE VALUE OF WINTER-FLOWERING BEGONIAS is well exemplified in one of the houses at Orsett Hall, Essex, where numerous plants of the most useful varieties are flowering profusely, and Mr. R. Castle, the gardener, states that he finds them indispensable. *B. semperflorens* and its variety *rosea* are especially good; the large white blooms of the former and the rosy-tipped flowers of the latter variety are produced very freely, even by small plants in 60-size pots. These young specimens are very useful for decorative purposes, either in a warm conservatory or a stove. *B. fuchsioides*, with its pendant brilliant scarlet flowers, is similarly attractive, while *B. Ingramii* has been in excellent condition for two months and more, and plants are still loaded with blooms. *B. Froebeli* is also well grown, and when bearing its deep scarlet flowers as freely as it is now it is unsurpassed amongst its allies. Good turfy loam forms the basis of the soil employed, and the healthy growth of the plants amply testifies that they appreciate their treatment.

— "IN the same gardens a comparatively rare plant is now flowering—namely, THE VIOLET-SCENTED TINNÆA (*T. æthiopica*), of which you gave an engraving in the Journal some time ago (February 3rd, 1881, page 94). This is not so remarkable for the beauty of its flowers as for its fragrance, which strongly resembles Violets, and in a warm house of moderate size one plant is quite sufficient to perfume the air most agreeably. The corollas are two-lipped, deep maroon, almost black, the calyx being large and light green, inclining to white. The chief defect of the plant is that it is liable to become straggling unless the growths are pinched-in to induce a sturdy and compact habit. It delights in a stove temperature and a moist atmosphere, with a compost of light loam, sand, and leaf soil."

— WRITING on the WEATHER IN THE SOUTH OF SCOTLAND

a correspondent observes:—"A snowstorm with fog and hard frost has since the 5th inst. stopped all outdoor work. Inland the weather has been much more damaging than in our district. From one place in Berwickshire we have heard that the coal supply was exhausted; and the roads to the railway station being impassable, they had to make the best of things until the roads were cleared. The weather previous to this outbreak was fairly good, consequently there have been both gardeners and farmers found in a state of unpreparedness. Many of the latter have neglected to secure Turnips, and we have even heard of Potatoes being as yet unlifted. The latter, owing to the railways being blocked, have risen to a very high price considering what had been realised of late years. The vegetable markets, which have been overstocked throughout the autumn, will now be scantily supplied, as the snow is generally over a foot in depth in the district. On the night of the 11th inst. the frost was intense, the thermometer indicating from 8° to as low as -4° Fahr., or 24° to 36° of frost." In another district of Scotland we are informed the thermometer a week ago registered as low as -10°, or 10° below zero.

— THE DOUBLE WHITE BOUVARDIA ALFRED NEUNER is becoming a great favourite with the florists and bouquetists in Covent Garden, and the flowers are now quite abundant in the windows there. It appears to be greatly appreciated for button-holes, and for this purpose the flowers are admirably adapted either associated with Rose buds, Violets, the single scarlet and pink Bouvardias, and similar flowers.

— "L. D. W." remarks:—"CHRYSANTHEMUM GOLDEN CIRCLE is a very useful Pompon variety that is not generally known. It is of dwarf sturdy habit, a profuse bloomer, and the flowers a very good yellow in colour. This variety retains its foliage well, and is not so subject to mildew as many varieties. It is admirably adapted for growing into small specimens for decorative purposes; or where naturally-grown bushes are in request, with a minimum of labour required in staking, this variety should have a place, as it will be found a grand companion to *Sœur Melanie*."

— GARDEN APPOINTMENT.—Mr. H. A. Mann, who has for the last nine years held the position of head gardener at St. Vincent's, New Somerby, Grantham (Mrs. R. Hornsby's), has recently been appointed to a similar post at Denton Manor near Grantham, the seat of Sir W. E. W. Gregory, Bart., M.P.

— "B." gives the following as three FREE-FLOWERING DOUBLE PELARGONIUMS:—"Few flowers are more charming during the winter season than a good double white Pelargonium. The best in all respects that I have had is *Candidissimum plenum*. The truss is not so large as some kinds, but is quite large enough, while it is a model as to form, and of the purest white. Like other double varieties it requires stove treatment during the winter. An occasional application of some manurial agent is also necessary to keep the plants floriferous. Old plants are much better than yearlings, which applies to other kinds as well. The most useful scarlet is doubtlessly *Wonderful*, the most floriferous of all doubles. This is a sort which I always think is seen to greater advantage during the winter months than at any other season. Of pink shades *Madame Thibaut* is the best. It is almost as free-flowering as *Eugène Bandouin*, and has a larger truss of pips. Both are good, though I prefer the former."

— WE have received some further particulars in reference to the second annual EXHIBITION OF PLANTS AND HORTICULTURAL APPLIANCES to be held at the AGRICULTURAL HALL, ISLINGTON, from March 15th to the 24th, 1883, which has already been announced in these pages. Special provision is made for plants, fourteen classes being enumerated in the schedule, the prizes in

thirteen being of equal value—namely, a gold medal value six guineas as the first prize, or money if preferred, and a silver medal value three guineas as the second prize, offered under the same conditions as the other. In the fourteenth class, however, which is for a collection of British and foreign fruits, the first prize will be a gold cup value £10, and the second prize a silver cup value £5. Classes are provided for collections of hardy spring-flowering plants arranged for effect, decorative evergreens and flowering shrubs, Hyacinths, Narcissus, Tulips, miscellaneous bulbs in flower and arranged for effect, Ivies, Hollies, bedding Pelargoniums, carpet-bedding plants, dinner-table decorations, window boxes, and hanging baskets. The value of the prizes offered may be expected to insure a keen competition, and if that be the case an extremely attractive show will result. The horticultural appliances will include exhibits from a number of the most important firms, comprising greenhouses, conservatories, frames, borders, heating apparatus by water and gas, summer houses, garden seats, vases, rockeries, implements, fancy boxes, flower stands, dried grasses and flowers, artificial manures, and insecticides. The Manager is Mr. J. H. Raffety, the Hon. Sec. Mr. Shirley Hibberd, and the Assistant Sec. Mr. W. A. Holmes.

— MR. BARDNEY writes:—"The plant of *LUCULIA GRATIS-SIMA* referred to on page 475 has about 320 trusses of flowers; the number mentioned by your correspondent only alluded to those fully expanded when he saw them. This is merely stated that readers of the Journal who do not know this beautiful plant may form a correct idea of its free-flowering habit."

— AN experienced cultivator writes as follows:—"The best BED OF HARDY PLANTS I have seen this season was a large one, the centre being composed of the two varieties of *Pentstemons* *Eclipse* and *Mrs. Sutherland Walker*, both being reddish shades of colour, and in habit branching and floriferous. These were planted about 3 feet apart each way, the ground beneath being covered with a carpeting of the dark purple *Viola Alpha*. A line of the yellow *Viola Sovereign* surrounded these, and another line of the dark-leaved *Ajuga reptans* divided this from the edging, which was a sloping band of *Sedum glaucum* rising from the grass of the lawn. So much depends on the way that these hardy flowers are treated that it may be advantageous to make a note of this. In the first place, both *Pentstemons* and *Violas* require very liberal culture. Both require to be strong plants when placed out. The *Pentstemons* were struck in the summer of 1881, not in the autumn as is generally the case. The *Violas* were merely old plants divided and planted early in spring. The results were that by the beginning of May the *Violas* were flowering freely and the bed a feature in the grounds. In June the *Pentstemons* were blooming, and continued with the *Violas* without break until the end of November. At their best not even the scarlet *Pelargoniums* could rival the *Pentstemons* in brightness. The summer work merely consisted in placing a short stake to each plant of *Pentstemon*, and in cutting the seeding spikes of these and the seed capsules off the *Violas*. I have some late spring-struck *Pentstemons* of 1882 potted for bedding purposes next season. These do very well, and come into flower even earlier than spring-struck plants of the preceding year."

— A CORRESPONDENT writes:—"There is at the present time a GOOD DISPLAY OF *CALANTHES* in one of the plant houses at Marston House, Frome. They are disposed in a bank of such Ferns as *Davallia Mooreana*, *Adiantum Farleyense* and *cuneatum*, and *Lycopods*, and are remarkably effective. The varieties include the drooping *C. vestita* and *C. vestita lutea*, and apparently three distinct forms of *C. Veitchii*. Of the latter the dark red form is decidedly the most valuable. The others are much lighter, one being tall and arching, and the other more erect,

sturdy, compact-flowering, and the flowers smaller, of a still lighter shade. They are grown in a light compost, consisting principally of sphagnum, rough peat, and charcoal, and were not dried off nor transferred to a lower temperature when the foliage was commencing to change colour. Even those who affect to despise Orchids generally must admit that *Calanthes* for decorative purposes have no equal during the dull winter months."

— THE "GARDEN ORACLE" for 1883 is now issued, and the fact that this is the twenty-fifth year of publication is in itself sufficient testimony of its value. In addition to usual calendrical matter and miscellaneous useful tables lists of the new plants and flowers of 1882 are given, together with selections for general cultivation. New and select fruits and vegetables receive similar attention, one of the most important features of this issue being a synoptical catalogue of garden Peas. Illustrations of new garden appliances are also given, completing a compendium of seasonable information.

LINUM TRIGYNUM.

THIS old inhabitant of our plant houses is not half so generally grown as it deserves to be for decorative purposes at this season of the year. When well grown no plant arrests the attention of visitors sooner than this. If I had the room to spare for a time at this season of the year I should have sufficient plants to entirely fill a house, or one side of it, and intermix with it plants of *Plumbago rosea* in 5 and 6-inch pots. The feathery sprays of the latter would rise well above the groundwork of yellow produced by the more bushy habit of the *Linum*.

Linum trigynum is generally placed in catalogues as a greenhouse plant, but when subjected to cold treatment its growth is remarkably slow, and few flowers are produced in winter. During summer it will thrive well under cool treatment, and I daresay in the more southern parts of the country would do outside for a few of the warmest months in a sheltered position. This, however, I cannot recommend, for I have never tried it, but know outside treatment will not do in wet, cold, northern localities. It is only during the hottest months of the year that I place our plants in cold frames.

Propagation is effected by cuttings of the young shoots, which are produced freely after the plants have flowered and been partially cut back. The most vigorous growths should be selected for the cuttings, being taken when about 2 inches in length, and inserted in sandy soil either singly or in a 5-inch pot, and placed in a vinery or any warm position under a bellglass. The cuttings will root freely and quickly in any warm close house with or without bottom heat; in fact, if the old plants are kept in a very warm moist atmosphere they will quickly throw out numbers of roots from the stems. This plant is rather strong-rooting, and must be potted singly as soon as the cuttings are struck, and grown in an intermediate house until they are ready for larger pots. When the young plants have commenced rooting in their first pots the points of the shoots must be pinched out in order to compel them to break back. Stopping the shoots must not be neglected when required in the early stages of growth. If the cuttings are rooted early in the month of April they will be ready for 5 or 6-inch pots in June, which are large enough for bushy decorative plants. Cool-frame treatment may be afforded during the two following months, or until the middle of September; after that date they must have a position where the night temperature will not fall below 50°. The shoots should be stopped about a fortnight before placing the plants in their flowering pots, and the plants rooting freely into the new soil before they are placed into cold frames. Care must be taken in preparing the plants for this shift, or they are sure to be checked for a long time in consequence.

Particular attention to watering and syringing is of the greatest importance in the cultivation of this plant. If once allowed to suffer by insufficient supplies they are sure to become infested at once with red spider. They can be kept clear of this pest if properly watered and syringed heavily twice daily. If this be done every morning and again early in the afternoon, and the frame closed while the sun is on it, with abundance of moisture, there need be but little fear of red spider troubling the plants. During their season of growth they should stand upon some moisture-holding material: nothing is better for this purpose in frames than coal ashes. Although abundance of water is required care must be taken for some time after they are first potted. Plants not infrequently are watered too freely when in this stage and the soil in consequence soured. When the pots are fairly

well filled with roots stimulants may be given freely every time watering is necessary. Once or twice weekly applications of clear soot water will be found very beneficial in imparting to the foliage a dark green hue.

Air must be freely admitted during the summer on all favourable occasions in order to ripen the growth as it is made, as upon this depends very much whether the plants flower profusely or not during winter. It is wise, however, to ventilate freely early in the season while the young plants are growing rapidly. They will stand without any apparent injury a close warm atmosphere during autumn and winter, but the flowers are over quicker, and do not possess that substance and brilliancy as they do when brought into flower in the temperature of an intermediate house. A little shading is necessary during the summer, at the same time every ray of light possible should be admitted to them.

The soil I have found most suitable is good fibry loam with one-seventh of manure, or a 6-inch potful of bone meal and the same quantity of soot to each barrowful of soil, with sufficient coarse sand to render the whole porous.—W. BARDNEY.

PLANTING ROSES—SPRING v. AUTUMN.

THIS question has now been so thoroughly well discussed that further remarks are hardly necessary, more especially as this season it has practically settled itself, for after having had an unusual amount of rain in October, November, and the early days of December, we are now having snow and sharp frost (10° at 4 feet from the ground), and planting is simply impossible; but I may be permitted, as the originator of the question, the privilege of a reply. I cannot but feel grateful for your many kind correspondents, most of them known to me, who have given us their opinions, and for the courteous manner (so becoming in the *Journal of Horticulture*) with which it has been treated. I am bound to say that the preponderance of opinion is against me, but whether facts are equally adverse is another matter. This can only be proved by further experiments, as sufficient evidence in favour of both systems has been recorded in the *Journal*.

It must be borne in mind that I did not write about what one might do with the transplanting or removing of plants which were already in the garden, where they would have no time to remain out of the ground, and where they could be moved at any time during October so as to make fresh roots before the winter set in, but to those which had come from a distance, which are never received from the nurserymen until November, and sometimes in December; and in my opinion it was, as I said, better to get these in the autumn (by no means to delay the order till the spring) and then lay them in, covering the roots with stable litter and then leaving them. Now in the opinions which have been given adverse to this plan it has been in many instances conceded that it was good for Teas, and indeed this is the advice which is given in some catalogues as to the winter treatment of this class. But I would desire to ask, Which is to be protected—the top or the roots? If the roots, which I hardly imagine to be the case, what difference can there be? They are budded on the same stock, and it is that and the junction which have to be protected. In fact, as I have more than once insisted, I do not believe that this difference in treatment in Teas and Hybrid Perpetuals is at all necessary in the northern parts of England or in the south of Scotland and Ireland generally. In the Midlands, where frost is so much more felt, or in the northern parts of the kingdom, the case is perhaps different. The newer varieties of Teas are so much hardier than many of the older ones, and some of the newer Hybrid Perpetuals have so much Tea blood in them, that they approach more nearly to one another than they used to do, and their treatment, therefore, becomes more assimilated.

As I look at my Roses heeled in and covered with stable litter I must confess to being more easy in my mind about them than those that are planted out, although the latter are protected about the roots with longish litter from the pigstye, for I believe that well-decayed stable manure is but a poor protector from frost; it is so sodden that I think it must hold much wet, and amongst other things that next season will, I hope, bring to us will be further experience on the system I have thus indicated.—D., Deal.

ASTROCARYUMS.

THE *Astrocaryums* are a genus of pinnate-leaved Palms, chiefly found in South America and inhabiting the regions on the upper Amazon, and frequenting the marshy districts in the neighbourhood of that and other rivers. Like the *Martinezias*, they are distinguished by an abundance of formidable spines, which thickly clothe the stem and leafstalks; but notwithstanding this character the species are mostly rather handsome when they reach a good size.

A fine example of *A. mexicanum*, a species which was introduced from Mexico in 1861, is grown in one of the houses at Endcliffe Hall, Sheffield, and is probably the first which has flowered and

ripened seeds in this country. The woodcut (fig. 97) shows a portion of this Palm, the spadix of flowers being sheltered under a large spathe covered with spines, which gives a most peculiar



Fig. 97.—*ASTROCARYUM MEXICANUM* - SPATHE AND SPADIX.

appearance to the plant. Seeds have also been matured, as the *Astrocaryums* are not dioecious like many other Palms, but both

pistillate and staminate flowers are produced on the same spadix, and fertilisation is thus readily effected naturally. The generic

name (*Astrocaryum*) refers to a character of the fruits in some of the species, which, when mature, split into six narrow portions, which spread out in a star-like manner and permit the inner portion of the fruit to fall out. Like many other Palms, these are not devoid of uses. For instance, *A. Murumuru* produces an edible fruit upon which cattle feed in its native country, and the fibre of *A. vulgare* leaves is employed in weaving hammocks and various other purposes.

The fruits of many species of Palms are invaluable in some tropical countries, the Date and Cocoa nut being remarkable examples of those useful in this respect; the Areca nut, too, is another noted production, while the Ivory nut is also the fruit of a Palm. One extraordinary character of Palms is the astonishing number of flowers produced by single plants. For instance, twelve thousand staminate flowers have been counted in one spathe of the Date Palm; but this number is far surpassed by *Alfonsia amygdalina*, as in one spathe as many as 207,000 flowers have been produced, and it is estimated that one plant has borne about six hundred thousand flowers. Several other similar examples have been observed, and the large specimen of *Arenga saccharifera* in the Palm house at Kew a few years since, which used annually to produce enormous quantities of flowers, has often attracted attention on this account.

At Endcliffe a grand specimen of *Seaforthia elegans* has been fruiting for a long time, the seeds falling and germinating in hundreds on the rockery at the base of the specimen, and these Mr. Stevens transfers to pots as they become large enough for removal.

GROWING CHRYSANTHEMUMS.

IN reply to your correspondent "J. L." (page 556) in reference to growing Chrysanthemums for exhibition, I should refer him to the *Journal of Horticulture* of December 29th, 1881—Mr. J. W. Moorman's excellent article on Chrysanthemum culture. By following the directions given there and selecting the right buds you cannot fail to have fine flowers and plants. But now that the subject is opened I think it would be interesting if some of our successful northern growers would give their experience in regard to crown and terminal buds—the varieties they have found to work best on these two buds, say the best twenty-four incurved and twenty-four Japanese. The selection of buds is but indifferently understood, and undoubtedly the secret of success lies not so much in stimulants as disbudding. I might state that Prince of Wales and its sport Mr. Corbay have done but indifferently on the crown bud about Liverpool this season.—C. WARING.

ROYAL HORTICULTURAL SOCIETY'S COMMITTEES.

THE reconstruction of the Committees of the Royal Horticultural Society for 1883 by the Council is as follows:—

SCIENTIFIC COMMITTEE.

CHAIRMAN.

Sir Joseph Dalton Hooker, K.C.S.I., M.D., C.B., F.R.S., V.P.L.S., Royal Gardens, Kew.

VICE-CHAIRMEN.

Geo. F. Wilson, F.R.S., Heatherbank, Weybridge Heath.
Col. R. Trevor Clarke, Welton Place, Daventry.
Rev. M. J. Berkeley, F.R.S., Sibbertoft, Market Harborough.

SECRETARY.

Rev. G. Henslow, F.L.S., Drayton House, Ealing.

Balfour, Professor I. Bayley, Hillhead, Glasgow.	Hogg, Robert, LL.D., F.L.S., 99, St. George's Road, S.W.
Bauer, F. O., Normal School of Mines, South Kensington.	Loder, E. Giles, Floore, Weedon, Northamptonshire.
Bennett, Alfred W., M.A., B.Sc., F.L.S., 6, Park Village East, N.W.	Lowe, Dr., Wimbledon.
Boseawen, Hon. and Rev. J. Townshend, Lamorran, Probus, Cornwall.	Lynch, R. Irwin, A.L.S., Botanic Gardens, Cambridge.
Boulger, G. S., 144, Kensington Park Road, Notting Hill, W. [Kew.]	Masters, Maxwell T., M.D., F.R.S., Mount Avenue, Ealing, W.
Church, A. H., F.C.S., Royston House, Cooke, Dr. M. C., Herbarium, Kew.	McLachlan, R., F.L.S., Lime Grove, Lewisham.
Crewe, Rev. H. Harpur, Drayton Beauchamp Rectory, Tring.	Mangles, J. H., Valewood, Haslemere.
Elwes, H. J., F.L.S., F.Z.S., Preston, Cirencester.	Moore, Thos., F.L.S., Botanic Gardens, Chelsea, S.W.
Foster, Dr. Michael, F.R.S., Cambridge.	Murray, G., Botanical Department, British Museum.
Gilbert, J. H., Ph.D., F.R.S., Harpenden, St. Albans.	Paseoe, F. P., F.L.S., 1, Burlington Road, Westbourne Park, W.
Glaisher, Jas., Dartmouth Place, Blackheath.	Smith, Worthington G., F.L.S., 125, Grosvenor Road, Canonbury, N.
Grote, Arthur, F.L.S., 20, Cork Street, Burlington Gardens, W.	Strickland, Sir C. W., Bart., Hildenley, Malton.

FRUIT COMMITTEE.

CHAIRMAN.

Henry Webb, Redstone Manor House, Redhill.

VICE-CHAIRMEN.

John Lee, 78, Warwick Gardens, W.
Sir C. W. Strickland, Bart., Hildenley, Malton.
H. J. Veitch, F.L.S., Royal Exotic Nursery, Chelsea, S.W.

SECRETARY.

Archibald F. Barron, Royal Horticultural Society, Chiswick, W.

Blackmore, R. D., Teddington.	Mason, Major F., The Firs, Warwick.
Bunyard, George, The Nurseries, Maidstone.	Paul, George, Cheshunt, Herts.
Burnett, J., The Gardens, Deepdene, Dorking.	Paul, William, Waltham Cross, N.
Crowley, Philip, Waddon House, Croydon.	Rivers, T. Francis, Sawbridgeworth.
Denning, W., The Gardens, Lonsborough Lodge, Norbiton, Surrey.	Roberts, J., Gunnersbury Park, Aeton.
Ford, Sidney, Leonardslee, Horsham.	Rutland, F., Goodwood, Chichester.
Goldsmith, G., Hollenden Park, Tunbridge.	Silverlock, Charles, 412, Strand, W.C.
Hogg, Robert, LL.D., F.L.S., 99, St. George's Road, S.W.	Smith, J., The Gardens, Mentmore, Leighton Buzzard.
Howeroft, Mr., 14, Tavistock Row, W.C.	Stevens, Zadok, The Gardens, Trentham Hall, Stoke-on-Trent.
Killick, Lewis A., Mount Pleasant, Maidstone.	Sutton, Arthur W. (Sutton & Sons) Reading.
Lane, John E., Berkhamstead.	Weir, Harrison, Weirleigh, Brenebley, Staplehurst.
Laxton, Thos., Bedford.	Willard, Jesse, Holly Lodge Gardens, Highgate, N.
Lyon, S., The Gardens, Sundridge Park, Bromley.	Woodbridge, John, The Gardens, Syon House, Brentford, W.

FLORAL COMMITTEE.

CHAIRMAN.

Rev. H. Harpur Crewe, Drayton Beauchamp Rectory, Tring.

VICE-CHAIRMEN.

B. S. Williams, Victoria Nursery, Upper Holloway, N.
Geo. F. Wilson, F.R.S., Heatherbank, Weybridge Heath.
Shirley Hibberd, 15, Brownswood Park, Stoke Newington, N.

SECRETARY.

Archibald F. Barron, Royal Horticultural Society, Chiswick, W.

Ballantyne, H., The Dell Gardens, Egham.	Hudson, James, The Gardens, Gunnersbury House, Aeton.
Baker, George, Coombe Cottage, Kingston-on-Thames.	James, J.
Bealby, William, The Laurels, Alton Road, Roehampton.	Kelloek, W. B., F.L.S., Stamford Hill, N.
Bennett, H., Shepperton, Middlesex.	Kinghorn, F. R., Sheen Nursery, Richmond, Surrey.
Cannell, Henry, Swanley.	Laing, John, Stanstead Park, Forest Hill, S.E.
Cutbush, James, Highgate, N.	Lee, William, Hammersmith.
Dominy, John, 11, Tadema Road, Chelsea.	Llewelyn, J. T. D., F.L.S., Penllergare, Swansea.
Douglas, J., The Gardens, Great Gearys, Ilford, E.	Masters, Maxwell T., M.D., F.R.S., Mount Avenue, Ealing, W.
Duffield, G., The Gardens, Bamford Lodge, Winchmore Hill, N.	McIntosh, James, Dunccevan, Weybridge.
Ebbage, H., The Hall, Middlesex.	Moore, Thos., F.L.S., Botanic Gardens, Chelsea, S.W.
Eckford, Henry, The Gardens, Sandywell Park, Cheltenham.	Ridley, Henry N., B.A., Natural History Museum, South Kensington.
Fraser, John, Lea Bridge Road Nursery, Leyton.	Turner, Harry, Royal Nursery, Slough.
Green, Charles, The Gardens, Pendell Court, Bletchingley, Surrey.	Wills, John, Onslow Crescent, Onslow Square, S.W.

AUCHENDRANE.

AUCHENDRANE, which is beautifully situated on the classic banks of Doon in South Ayrshire, is the seat of Sir Peter Coats, a gentleman well known for his large-hearted benevolence and for the lasting benefits he has conferred on his native town of Paisley. Few of the wealthy of any country have been so generous in considering the wants of the people and ministering to them. Sir Peter a few years ago presented the town of Paisley with a building for a free library and museum at a cost of about £20,000, and recently provided additions to the buildings at a further cost of £12,000. This is only one (though it is the most conspicuous) of his public acts of generosity; but few will ever know of the many private acts of charity bestowed by him on the poor and needy.

When visiting the International Flower Show at Edinburgh in September last I took the opportunity of spending a day with my much-esteemed friend Mr. Currie, the head gardener, and through the kindness of Sir Peter of having a day's salmon-fishing in the Doon.

The principal entrance to Auchendrane has been well chosen at a point on the Ayr and Maybole turnpike road, distant from Ayr about five miles and close to a bridge that crosses the Doon. The approach on each side is tastefully planted with large clumps of Rhododendrons and other flowering shrubs, which grow luxuriantly here, and flower freely during the season. The mansion is pleasantly situated on the right bank of the Doon, and secluded from the public road by plantations. It is a modern building, standing on an eminence high above the rapid-flowing river. The house commands a fine view of a richly wooded valley. The mansion and grounds have been greatly

improved of late. The property possesses rare natural advantages, but much has been done to improve it since it came into Sir Peter's possession. It is rare to find within so small an area so much of what constitutes the charm of a residential estate. By judicious arrangement a large extent of pleasure ground has been formed and flower gardens laid out, while ornamental trees and shrubs have been skillfully planted in suitable places for effect. Pleasant winding walks have been made through the woods and along both sides of "bonny Doon," these being connected by means of a light and graceful bridge spanning the river. Lawn tennis and other recreation grounds have been laid out amid charmingly picturesque surroundings. Artificial ponds have been constructed on the banks of the river, in which experiments have been carried on in the artificial hatching of salmon fry. The mansion is artificially lighted by means of gas manufactured from paraffin oil on the estate. The gas, I understand, is better than that from coal, and its manufacture is free from some of the disagreeable effects incident to ordinary gas-making.

The kitchen and fruit gardens, vineries, Peach and plant houses lie to the left of the mansion on a somewhat higher level, and are screened from it by a plantation of trees and shrubs. The gardener's house, a substantial new building, stands on a commanding position close to the kitchen garden. It is commodious (with rooms upstairs and down) and well fitted with bath-room and every other appliance calculated to give health and comfort. The forcing and plant houses stand all together in a large block. Some are span-roofed and some of them lean-to, and each house is divided by a glass partition, and connected by a door to the next, so that a person entering the first house can pass through all the others without the necessity of going outside.

The first house in the range is a span-roofed plant stove 60 feet long by 22 feet wide, with raised bed in the centre for standing the plants on. It contained choice climbing and other plants. The climbers are planted out in the borders and trained over the roof; treated in this way they do well. I have seldom seen better-grown plants of *Allamanda Hendersonii* and *Bougainvillea glabra*. They were flowering most profusely, and I was informed that they had been so for months. The centre bed and side stages are filled with large Palms, Ferns, Crotons, *Dracenas*, *Eucharises*, *Cycas revoluta*, and a general collection of stove plants. A small but choice selection of *Odontoglossums* and other Orchids filled a portion of one of the side stages, all of which were clean and healthy.

The second house is a half-span-roofed vinery 50 feet in length. It was planted some two years since with from two to three Vines each of the following varieties:—*Gros Guillaume*, *Lady Downe's Seedling*, *Alnwick Seedling*, *Black Alicante*, *Gros Colman*, *Black Hamburgh*, and *Foster's Seedling*. The Vines were bearing from one to two large bunches each of nicely finished fruit. They have made strong canes this year, and to judge from their health and general appearance they will produce some fine fruit next year. The portion of back wall in this house forming the half-span is covered with Vines of *Gros Colman*, which were bearing a heavy crop of medium-sized bunches and large finely coloured berries.

The third house contains Melons, Figs, and plants. The Melons are planted out in a border in the usual way close to the front lights, and trained over one side of the roof. The plants occupy a stage on the other side, and the Figs the end wall and centre of the house. *Auchendrane Hybrid* and *Strathfieldy* are the varieties of Melons generally grown here. Mr. Currie informed me that good crops of Melons and Figs were obtained annually from this house, and that the same atmospheric treatment seemed to suit both fruits. The fourth house is an early vinery—a lean-to—20 feet long by 14 feet wide, planted with *Black Hamburgh* and *Foster's Seedling*. The fruit was all gathered some time before my visit, and the Vines were in good condition for forcing early next year. The fifth house is an octagonal greenhouse 24 feet by 24 feet, and 18 feet high, the roof of which is gracefully draped with climbing plants hanging down in long festoons of flowers. These consisted of *Passiflora*, *Tacsonia*, *Bignonia*, *Lapageria*, *Acacia*, and *Maréchal Niel Rose*, the latter worked on the Banksian Rose, and seemed to do remarkably well on this stock. The interior of the house was filled with large *Camellias* and a general assortment of healthy well-grown plants.

The sixth house is a late vinery devoted entirely to the culture of *Gros Guillaume*. The Vines looked as if they were well cared for; they were vigorous and clean, and bearing a good crop of highly finished fruit. In passing I might say that Mr. Currie informed me that none of the Vine borders were ever allowed to become dry at any time, and that they were freely watered at all stages of the Vine's growth when they required it, which had the effect of keeping the leaves in a green and healthy state, and allowed of the canes getting thoroughly ripened before the foliage fell. The seventh house is devoted to Azaleas. It is a light and graceful structure, well adapted to the growth of plants of this kind. The inside is fitted up with stone stages for placing the plants on; and part of the rafters here, as is the case in most of the plant houses, is covered with climbing plants, which give a finished effect to the house. At the time of my visit the Azaleas were undergoing a thorough syringing with a mixture of paraffin and water previous to being placed in their winter quarters. They were large pyramidal-trained plants from 6 to 8 feet high and well set with flower buds. The eighth and last house in this block is a small Peach house some 50 feet by

9 feet, which calls for no special comment. All the houses were neat and orderly and scrupulously clean.

At one time all the houses here were overrun with myriads of ants. They had increased in numbers to such an alarming extent that they ate and destroyed the best of the fruits, and if they had not been exterminated they would soon have destroyed all the plants in the houses. Mr. Currie tried every means he could hear or think of to destroy them, but to no effect. The case became serious, and it was just a question of whether the ants or the plants would have possession of the houses. If the ants could not be destroyed they would be obliged to give up growing plants and fruits. Under these conditions Mr. Currie became desperate, and determined to flood the houses and borders with cold water and drown them out, even if it did injury to the Peach and Vine roots. After repeated and continuous flooding he succeeded in destroying every ant in the houses.

Immediately behind the houses are the young men's rooms, potting sheds, stokeholes, seed room, &c. An aviary has recently been erected on a level plot of ground between the gardens and the mansion. It is an ornamental building, and contains a choice collection of foreign birds of beautiful plumage. Attached to the aviary at each end is a small span-roofed greenhouse and a span-roofed plant stove, each 20 feet in length. The greenhouse contained good specimen plants of *Fuchsias*, *Pelargoniums*, and others, besides an assortment of plants for cutting bloom from. A fine selection of the best *Abutilons* were grown in this house and trained up the rafters, which produced a constant supply of flowers to cut from. A little heat is kept on during the winter, as the demand for cut flowers here is great at all times. The plant stove contained neat little plants for table decoration. To the side of this house is a rustic cool fernery, which looks well, but it is found to be too much shaded and dark for the proper growth of Ferns, and will consequently be altered from its present state.

There are two kitchen gardens of moderate size intersected by gravel walks. One is in front of the forcing houses, and the other in front of the gardener's house. The ground in both is undulating. The soil is a light clayey loam, which produces good crops of vegetables and fruit; but the fruit crop, as far as Apples, Pears, and Plums are concerned, has been a failure this season, as in most other places. Besides fruit and vegetables great quantities of *Carnations*, *Dahlias*, and other flowers are grown in the kitchen garden to cut from during the summer.

The flower garden lies a little to one side of the mansion on a broad lawn immediately above the Doon, from which a fine view can be had "of hill and dale, of wood and lawn, and of rock and river" in a most enjoyable atmosphere, away from the smoke and bustle of town life.—A. PETTIGREW, *Cardiff*.

CHRYSANTHEMUM SŒUR MELANIE.

I SHOULD have replied earlier to the remarks of your correspondent Mr. C. Orchard, but was anxious to obtain as much accurate information as possible before doing so. I have obtained flowers of *Sœur Melanie* and compared them with the variety grown in this neighbourhood under the name of *Souvenir de Malanche* (not "Melange," as written on page 475 and 500 by your two correspondents), and am fully satisfied that they are identical. I found this variety here seven years ago, and its value then well established about Liverpool. Mr. Glover, late gardener at Lea Hall, Gateacre, obtained it about twelve or fourteen years ago from Mr. Morse of Dursley, by cuttings through the post, under the same name as it is now known by in this locality. I also find it is under the name of *White Trevenna* in some gardens. Some six or seven years ago, if my memory serves me right, the name *Souvenir de Malanche* appeared in Messrs. Cannell & Sons' catalogue. Now the question arises, Which is the correct name of this variety, and how long has *Sœur Melanie* been in the market? If the latter name was only given about three years ago, there can be no doubt that it is an old variety under a slightly altered name.—WM. BARDNEY.

[*Sœur Melanie* and *White Trevenna* are quite dissimilar, and undoubtedly distinct varieties.]

ABUTILONS.

IN a recent issue of the Journal Mr. W. Bardney commented on the usefulness of *Abutilons* as winter-flowering plants, giving some valuable directions concerning their culture; and the attention he accords them they well deserve, for their utility is beyond all question, few plants continuing in flower over so long a period of the year, and requiring comparatively such little trouble to ensure their success. A few years ago the present race of hybrid *Abutilons* was quite unknown, and the past ten years have witnessed the production of nearly all the varieties now so highly appreciated in many gardens. Such species as *A. striatum*, *A. venosum*, and *A. insigne* have been long known, and these, with the distinct *A. vexillarium* or *A. megapotamicum*—a later introduction than the three former—had become well-

established favourites before any attempt had been made to raise a dwarf compact-habited race of plants. Cultivators upon the Continent took the lead in this direction, and amongst the forms which made their appearance at the beginning of the past decade *Boule de Neige*, which is still the best white variety, stands pre-eminent, possessing all the qualities of a really useful plant, compact yet vigorous in habit, very floriferous, the flowers well formed and pure white. The parentage of this I have been unable to ascertain, but together with *A. Darwini* it has proved the source of the present race of *Abutilons*. The last-mentioned species, it may be observed, is a native of Brazil, whence the late Mr. C. Darwin obtained seeds which produced the first plants grown in this country. The flowers are of good size, orange colour with darker veins, and sharply three-lobed leaves; one remarkable peculiarity of the plant being that the earliest flowers are sterile with their own pollen, but readily fertilised with pollen from another plant. By crossing *Boule de Neige* and *A. Darwini* the hybrid *A. rosæflorum* was produced about 1874 at Holloway, and this was a most important and curious advance, the flowers being rosy crimson, very even in form, and abundant.

About the same time or shortly after Mr. George, gardener to the Misses Nicholson, Ripon House, Putney Heath, who has contributed more to the improvement of *Abutilons* than any other English horticulturist, had raised some seedlings which were considered as the result of an accidental cross between *A. Boule de Neige* and *A. Darwini*, as these were the only two grown together at the time, but it is now uncertain which was the seed-bearing parent. From the first batch thus secured four were selected and sent out by Messrs. Osborn & Sons of Fulham, representing rose, yellow, and orange shades. The best, however, was *Lady of the Lake*, with rose-coloured flowers veined with a darker tint, and this was honoured with a certificate by the Royal Botanic Society, Regent's Park, in 1878. Such satisfactory results from chance fertilisation induced Mr. George to try several careful crosses, from which were obtained other distinct and beautiful forms, several being distinguished by the high colours of the flowers. One of the most notable of these is known as *Swanley Red*, and Mr. George attributes the rich colour of this and some others to a cross he believes he obtained between one of the *Abutilons* and *Hibiscus Rosa-sinensis*, the former being the seed-bearing parent. These plants are sufficiently nearly allied to render this probable, especially as in some of the forms so obtained the foliage is very distinct from the other *Abutilons*, exhibiting some distant resemblance to the *Hibiscus*, and the habit is also suggestive of that plant, though the supposed hybrid does not follow it in the fugaciousness of the flowers. Another cross has been similarly tried—namely, between the variegated *A. Sellowianum marmoratum* and a variety of the hybrid type, the result in this case being that plants have been raised which produce their flowers in clusters at the end of a common peduncle, and are thus quite clear of the foliage—a character of great importance. The flowers at present, however, are susceptible of improvement both in form and colour, though the cross must be regarded as a step in the right direction, and will no doubt lead to another type of *Abutilons*. Several other experiments have been tried, but they will be referred to on another occasion. At present only a few of the best of the varieties can be mentioned.

The flowers of all the varieties noted below are distinguished by the rounded petals, the margin slightly incurved, giving a globular appearance to the flower. The habit is compact and strong, the flowers being produced in great numbers throughout the winter months. *Sir Garnet Wolseley*, deep scarlet, with darker veins inside; *Mrs. Garfield*, pale pink, dark centre, large open bloom; *Splendens*, dark scarlet, very handsome; *purpurea*, purplish crimson or magenta, very distinct; *Goldfinch*, light yellow with orange veins, open flower; *Emperor*, deep purple; *The Premier*, very large flower, rich rose; *Crimson Gem*, scarlet crimson; *King of Roses*, bright rose; *Cloth of Gold*, golden yellow, smooth even petals, very free; *The Bride*, pale pink, delicate, free, and good; *Eneantress*, rose with deeper veins, small neat flowers, extremely free; *Silver Bell*, white with rosy veins, flowering in small clusters; *Orange Gem*, orange scarlet, open flower; and *King of Crimson*, one of the best, of a fine crimson hue. *Brilliant* is very distinct from the above, being more bushy in habit, but not so dwarf as those mentioned below. The flowers are deep scarlet, not so well formed as the preceding, but produced so freely that the variety is unrivalled in a decorative point of view.

In addition to these Mr. George has a race of very dwarf *Abutilons* very close in habit, and scarcely exceeding a foot in height after two years' growth, and are, therefore, invaluable for decorative purposes. The best of these are *Vivid*, rich scarlet; *Pink Gem*, small flower, clear rosy-pink; and *Scarlet Gem*, very bright.

The method of cultivation adopted by Mr. George corresponds to a great extent with that advocated by Mr. Bardney, except that at Putney a lighter compost is employed—namely, a mixture of loam, peat, and leaf soil in equal proportions, with a little sand, and the condition of the plants indicates that this suits them admirably. One important point in their culture is keeping them near the glass, as this not only insures a greater compactness of growth, but increased floriferousness with brighter-coloured flowers. It is a mistake to have *Abutilons* in too low a temperature, about 55° to 65° being the most suitable during the winter months. Good plants can be grown from cuttings in from six to nine months, and plants so raised in the spring will flower freely the following winter, one or two pinchings improving the habit of the plants.—L. CASTLE.

ALLAMANDAS.

YOUR correspondent "M. M." on page 498 recommends an intermediate temperature for these plants. They certainly will do fairly well under cool conditions, for I have had them in conservatories for fully three months without any fire heat being applied. I have also kept them in a night temperature of 50° during winter, and the plants have continued flowering until February. It is, however, a mistake to suppose they will last as long and well as in a higher temperature. In a warm house *Allamandas* grow rapidly and luxuriantly, also flower abundantly, every lateral that is produced affording blooms. As soon as one lot of flowers are produced the shoot branches into three or four, which yield blooms when they have extended about a foot or little more in length. Under warm treatment ten times more flowers will be produced than is the case when grown cool, as the continuous supply depends entirely upon succession growths. With care and a knowledge of how to thin out the lateral growths the plants will flower as well at the bottom as the top if trained under the roof of a plant stove.

As regards soil, peat is unnecessary. The *Allamanda* delights to grow in a good rich loam, to which is added a seventh of manure, and the whole pressed into the pot as firmly as possible. The plants will thrive if grown in pots, and when these are full of roots guano water or any other liquid manure may be supplied not only weekly, but daily.—X.

WATERING PLANTS.

THE best of soil may be procured and the plants properly potted in it, and yet everything may be spoiled through the injudicious supply of water. Watering is one of the arts which cannot be taught in writing, and, indeed, cannot be taught at all. The judgment of the operator must be called upon to decide when water is necessary. I am being continually asked, "How often should such and such a plant be watered?" My invariable answer is, As often as necessary. This impresses on the would-be recipient of what is supposed a secret the necessity of understanding. A rule which may be generally adhered to is, only to give water when the soil in the pot is dryish, and yet not so dry as to cause suffering to the plant. It should be understood that soil which is kept continually wet is always cold and ungenial, and plants cannot thrive in soil which is in this state. Moreover, soddened soil soon becomes sour, and that destroys the roots. Root-bound plants are not easily injured with too much water, but soil which is not occupied with roots quickly becomes sour.

An experienced person knows by the appearance of a plant whether it is needing water or not, but even he may be deceived unless the watering has been properly done. Generally speaking a plant needs water when the pot it occupies sounds hollow when struck with a key, pocket knife, or similar heavy article, and when a plant really needs water it should receive enough. The spaces left in the pots for holding water should be quite filled, and this must be repeated until the water drains from the pots; no more should then be given until required again.

Although overwatering is a common evil, sometimes less than enough is given. This generally happens when insufficient space is left in the pots to hold the water. This point should always have proper attention. Sometimes it happens with those who have been warned against, or have seen the evil of overwatering. A plant may be dry or it may not, but a teaspoonful or so is given, and the surface of the soil is moistened; still the plants look flagged, so by-and-by another dribble is given, and this goes on continually. The result is that while the surface is wet—often too wet—the soil where the roots are is dust dry, and so the plants languish. Sometimes when plants become too dry they cannot be moistened at all by ordinary applications of water.

The right thing in this case is to place the pots in water for some hours.

Rain water should be used if possible, and failing that the softest water procurable. It should never be used when lower in temperature than the house in which the plants grow. For this reason it is always best to have a cistern inside the house to contain it. Failing that it should always stand in the house for some hours previous to using.

LIQUID MANURE FOR PLANTS IN POTS.

When plants become rootbound they require shifting into larger pots, so that fresh nourishment may be afforded them. In many cases this is not practicable, and in all cases it is desirable to grow as large plants as possible in the smallest-sized pots. In that case top-dressings of rich material become necessary, and also feeding by means of liquid manure. Top-dressings are not always applicable, but in most cases liquid manure may be applied with advantage. The simplest kind of liquid is when a salt, such as sulphate of ammonia or nitrate of soda, is dissolved in the water. Such substances are cleanly and inoffensive, and are, therefore, preferred by many; but unless the soil contains something substantial in itself these will fail after a time, although they will promote luxuriant growth at first. For plants which are to occupy the pots for only a few months and then be thrown away they are very suitable, but otherwise they are not so good as dung or guano water. The latter is made by dissolving half an ounce or more of guano in a gallon of water. Liquid manure such as this should only be applied by inexperienced persons once or twice a week, for too much may do considerable harm. Good liquid manure may be made by steeping cow, sheep, deer, horse, or other animal manure in a cask of water. The water becomes highly impregnated with manurial matter, and is, when properly diluted, very useful. When liquid manure is made from animal manure the clear water only should be drawn off and used, for when thick it destroys the porosity of the soil. It is only the salts and gases of the manure which are dissolved in the water which are beneficial. Suspended matter is worse than useless.

Urine makes good liquid manure, especially when used with those prepared from manures. Pure urine should in all cases be diluted with six or eight times its bulk of water when used for plants in pots; when used in a stronger state it is almost sure to destroy the points of the roots.

Soot is useful as a liquid, which may be prepared by placing the soot in a bag and suspending it in the water, so that only the salts which it contains may mix with the water. The chief substances of value found in soot are carbonate and sulphate of ammonia.—N. B.

CULTURE OF DRACÆNAS.

DRACÆNAS are very useful plants, especially as they are well adapted for house decoration; and as most gardeners have much of that kind of work to do, these remarks may be of use to those not acquainted with its culture and propagation. Where any old plants have become too tall the tops can be taken off, turned out of their pots, and have most of the roots removed. The stems and roots may be then laid lengthways in cocoa-nut fibre, over a little bottom heat. They will produce scores of little plants, which, when strong enough, must be separated from the main stem and potted singly in small pots, in equal parts of turfy loam, peat, and leaf soil, with a little powdered charcoal and silver sand. They must be kept in a brisk moist heat close to the glass. Plants in 32-size pots make useful plants for decorating, but if large plants are required they must be shifted into larger pots before their roots become matted. They must not be kept in too moist an atmosphere during the winter, or the foliage will damp. When the plants are required for house decoration they should be grown in a drier and cooler atmosphere about a fortnight before using. Varieties of the terminalis and gracilis type are the most useful.—Y.

GRAPES FOR GENERAL CULTURE.

As a Grape-grower of many years' practice, and one as familiar with both new and old varieties as most people, nothing has surprised me more than the prominent advocacy of doubtful varieties of Grapes for general culture which has lately appeared in the pages of the *Journal of Horticulture*. I do not by any means hold the Editor responsible for all that appears, but when we see it stated in a leading article that "everyone" should plant early houses exclusively with such Grapes as the Madresfield Court and the Duke of Buccleuch, it is impossible to absolve the Editors from a certain amount of responsibility in the matter, not to speak of the fact that these two sorts, and another equally doubtful—the

Muscat Hamburg—have also been advocated for a main September supply as well. I believe I am correct in reference to the leading article which appeared a few weeks ago signed "HONI SOIT QUI MAL Y PENSE," for I have not the number by me now; I sent it away to a friend, who replies, "I doubt if he could get one good gardener of repute to endorse his advice to plant a whole early house each of the Duke of Buccleuch and Madresfield Court, to the exclusion of the long-tested and tried Black Hamburg, which his statements amount to, for not one garden in a hundred needs three early vineries."

No one who understands the wants of private gardens would advise the wholesale planting of doubtful fruits of any kind, and past articles in the *Journal* and other papers testify to the doubtful propriety of anybody, let alone "everyone," planting an early house each of the above two Grapes. One can only excuse the writer of the article in question on the ground of ignorance and rashness, until he points to successful examples of what he advises. The correspondence of the *Journal* must long ago have convinced its Editor how unwise it is to advise gardeners to commit themselves with their employers by rash ventures, knowing—as he should know—quite well that really excellent examples of the fruits he names are so exceptional that when they are produced they are at once chronicled as something unusual. We have two early vineries here, and I have no doubt my employer would allow me to plant them with any variety I thought best, but he would hold me responsible for the result; and if I had planted the whole 60 feet with the two sorts named for a supply all through May, June, and July, I can only guess what the result would have been, after having my own way in the erection of the vineries and formation of the borders, &c., and spent perhaps several years in an abortive experiment.—HEAD GARDENER.

[Admitting that our correspondent is an experienced grower of Grapes, and in his way a clever critic, we are the more surprised that he has missed the point of the letter which he criticises. The article on page 469 was *not* a discussion on and recommendation of "Grapes for general culture," but was a comparative estimate of varieties, and especially those "introduced during the last twenty years." No one knows better the value of the Black Hamburg as an early Grape than the writer of this estimate, and he would be the last to exclude it in favour of either the Duke or Madresfield Court if that were the question at issue. His experience is too great for that, and his success as a cultivator entitles him to express an opinion on all the Grapes he mentioned, for all of them he has grown well, most of them perhaps as well as they have been produced by any other cultivator in the kingdom. He can pass without notice the suggestion of "ignorance" that has been, we think, a little prematurely, not to say rashly, attributed to him. As to our unwisdom in committing gardeners, &c., we can endure either the joke or mild impeachment whichever our correspondent intended, and shall pursue our course as usual.]

THE GREENHOUSE AND ITS INMATES.

(Continued from page 450.)

CHRYSANTHEMUMS.

THESE are invaluable for decorating the greenhouse and for furnishing cut flowers during the darkest, duldest time of the year. Cuttings should be struck in spring on a hotbed, and afterwards transplanted into boxes in good loam and decayed manure 4 or 5 inches apart. Pinching must be attended to for the purpose of inducing a bushy habit. When the plants become too large for their position in the boxes they should be transferred into 6-inch pots, using the same kind of soil. Previous to this they should be grown in a cold frame. By May they should be placed out of doors in a sheltered place, plunging the pots in ashes. Stopping the shoots will be necessary at intervals up till June. Shifting must also be attended to, and abundance of water given to prevent the plants flagging at any time. As the pots become filled with roots liquid manure should be given occasionally. Staking must also be attended to, or winds will break the shoots. It is the practice of exhibitors to thin the flower buds as soon as they can be seen. If extra fine blooms are desired the practice may be resorted to, but for ordinary purposes it is seldom practised. The plants should be housed by the beginning of October, or at least before frost injures them. Should mildew appear at any time the affected parts must be dusted with flowers of sulphur; this will destroy it. While under glass they are somewhat liable to attacks from green fly. Syringings of soapy or tobacco water will prevent their appearance; smoking will destroy them when they do appear. After the flowers decay the shoots should be cut down to the surface of the pots, and the roots stood in any cool place safe from frost, and exposed to light until the necessary number of

cuttings have been furnished by them. The shoots from the base form the best cuttings.

Many possessors of small greenhouses do not grow these plants because they require much room. To such I would recommend the Pompon varieties. If there is only space for half a dozen plants I advise the growing of White Cedo Nulli, and, if variety be wanted, Yellow and Lilac Cedo Nulli. These may be grown and flowered in 6-inch pots if supplied twice a day with water and the tops pinched repeatedly. Under this treatment plants 15 or 18 inches high and as much across will produce between one hundred and two hundred blooms in November and December. Dwarf plants of tall kinds are often produced by layering the flowering shoots of tall plants into pots containing prepared compost in August or early in September. The following is a selection of good varieties:—*Show varieties*—Yellow: Jardin des Plantes, George Glenny, Mrs. Dixon. White: White Globe, Empress of India, Mrs. Rundle. Lilac-purple: Prince of Wales, Lady Hardinge, King of Denmark. *Pompon or Small-flowered varieties*: Bob, crimson; General Canrobert, yellow; Madame Marthe, white. Cedo Nulli varieties are all good. *Japanese*: Kri Kang, rosy-lilac; Elaine, white; The Cossack, crimson. *Anemone-flowered*: Gluck, yellow; Fleur de Maric, white; Prince of Anemones, lilac and yellow; Quilled Queen, white; Golden Queen, yellow; Empress of India, white. *Reflexed*: Julie Lagravère, deep red; King of Crimson, rich crimson; and Sœur Melanie, white.

CACTUS JENKINSONII.

Like many others of this class, this is a handsome plant when in flower. Its wants are very few: fibry loam, pieces of sandstone, and charcoal suit it. Plenty of drainage must be given, and from the time it finishes its growth until signs of fresh growth appear in spring very little water need be given. Ordinary greenhouse temperature all the year round and a sunny position suit it admirably.

CALLA ÆTHIOPICA.

The Lily of the Nile, as this is popularly termed, is an old-fashioned but indispensable plant, and one exactly suited to the amateur. Good drainage, good loam, leaf soil and sand, and plenty of water, with ordinary greenhouse treatment during the winter months from October to May, and planting out in a sheltered spot where it will be exposed to the sun during summer, is all that is needed to enable it to do well and reward the cultivator with plants which are worth growing, although they never flowered, but are doubly attractive when they produce their curious vase-shaped pure white spathes. Large specimens may be had with little trouble, but small plants in 6-inch pots are preferable for ordinary work. They should be divided at planting-out time if necessary, and potted, and then stood in the shade for a week or two before removing them to the greenhouse in September.—J. H.

(To be continued.)



HARDY FRUIT GARDEN.

WHEN the weather is unfavourable for ground work, or too cold for ordinary pruning to be done, orchard trees should have attention in thinning. The chief object with standard trees is to keep the centres thin and open and the branches from crossing each other, which will not only preserve the symmetry of the trees, but admit more light and air greatly to the benefit of the fruit. It is necessary to bear in mind that a large reduction of the head will cause a quantity of young shoots to arise in the following season, and should not be practised except in the case of weakly trees. A sharp saw and a keen eye exercised judiciously will soon improve the trees in the most neglected orchard. In some localities moss and lichen seriously affect the health of the trees, in which case scrape the trunks and main stems with a blunt hoe-like instrument, and then wash them with a strong salt brine, or paint them with limewash. The smaller branches may be reached by employing a syringe.

Where bullfinches are troublesome a good syringing with a mixture of water, lime, and soot will help to prevent their attacks. Pruning Gooseberry and Currant bushes is objected to at this season on

account of the havoc birds sometimes make with the buds, particularly near towns or buildings; but as most of the mischief is committed by the birds when the buds are swelling in spring, it is questionable whether it is not preferable to prune now and proceed as above advised. In pruning Gooseberry bushes it is advisable to distinguish between those that make much wood and do not bear freely, and those that make little wood and fruit abundantly. Very little pruning should be practised in the first case, merely thinning out in the centre, otherwise leaving the bushes intact, whilst the second description may be spurred in closely as regards the side shoots, shortening extensions as desired. Red and White Currants usually bear freely enough on spurs, hence the spray of last summer's growth should be cut hard back to the base. Black Currants should have the old growths well thinned out, and straggling branches and those too long cut back to young growths at the base. This will keep the bushes well furnished with strong young wood, which affords fine fruit plentifully.

Pruning wall and other fruit trees should be proceeded with as weather permits. Thinning and shortening back any spurs projecting too far from the wall should be practised more generally than it is, as it not only adds greatly to the appearance of the trees, but improves their vigour and health, as old spurs from their contracted bark do not admit of a free circulation of the sap. Old Pear trees still endure very hard pruning, breaking again regularly if the trees are healthy; but Apricots, Cherries, and Plums are not to be depended upon in that respect, yet they may safely be cut back to a single eye, which is necessary to keep the spur alive and assist it in becoming fruitful. Extensions should as far as practicable be trained in their full length, cutting away, however, any unripened shoots to firm wood, and any leading shoots may be shortened to originate growth to the required positions for filling vacant space. If the trees are not entirely loosened from the wall and re-nailed or tied, they should be examined carefully, renewing any shreds or ties that are worn out, loosening those too tight, as well as nails likely to cause injury to the branches or shoots drawn and replaced, so as to allow of the unimpeded swelling of the growths and the free flowing of the sap.

Young trees are frequently cut back severely, which is advisable when the trees are ill furnished as a provocative of vigorous growths for furnishing properly from the base, and in the case of trees that have the shoots imperfectly ripened. Then it becomes a necessity; otherwise to cut a young tree hard back is only to encourage strong growths, which from their grossness rarely ripen well. Trees left with their branches entire, properly laid in and trained, cover double the space and bear in half the time, as the more top the more roots and the less probability of the trees producing strong gross shoots. Healthy young trees always break freely, and afford plenty of young shoots to choose from without having the tops reduced, and come into bearing quickly, besides avoiding canker, gum, or other ills.

FRUIT HOUSES.

Vines.—A Grape room is as important for the keeping of Grapes during the next five months as the house in which the late fruit is grown, and to ensure the good preservation of the Grapes the room must be well ventilated, dry, and free from frost; indeed, it should if necessary be provided with artificial heat, so as to maintain a temperature of 45° to 50°. Freedom from dust is also essential. Racks for holding the bottles should be fixed in the walls, so as to maintain the bottles in a slanting position; and now the wood of the Vines is ripe the Grapes should be cut with some wood both above as well as below the bunches, and a few pieces of charcoal placed in the bottles along with clear rain water. The Vines should then be pruned and dressed. Gros Guillaume, Gros Colman, and Alicantes do best on the long-rod system of pruning, but Lady Downe's is so free that it succeeds well if pruned to a good eye. All glass, woodwork, and pipes must be well washed, removing the loose soil and mulching from the inside border, and replace with fresh loam with some bone meal intermixed.

In houses which have been closed the Vines are in various degrees of development. Where the buds are breaking freely a night temperature of 60° should be maintained, and 65° by day, allowing an advance from sun heat to 75° before giving any air, and then be

careful not to cause a sudden reduction of temperature. As the growth advances increase the temperature gradually to 65° by night, and when in flower a night temperature of 70° may be maintained. Disbudding should be done when the shoots are about an inch long, reserving the strongest and best-placed near the base of the spur; and in the case of short-jointed young rods it will be necessary to remove some of the buds, so as to keep them 12 to 15 inches apart on each side of the rod. In disbudding it is well to bear in mind that Black Hamburgs, Frontignans, Sweetwaters, and Muscadines produce finer bunches from young rods than on old spurs; hence, where the Vines give only small bunches a young rod should be originated from the base of each Vine, training these for the first season between the older ones, and at each annual pruning the spurs on the old rods should be cut away as far as the young rods are intended to bear, and in the second or third season the old rods may be cut out. In this manner the house is furnished with young vigorous wood, to the permanent advantage of the Vines, and without loss of crops.

PLANT HOUSES.

Roses are never more valued than during the winter months. To insure this it is essential to have a good supply of Tea varieties carefully prepared in summer, and to prevent interruption in the supply it is necessary to have a light well-ventilated house to grow them in, as they will not come on quickly enough in an ordinary greenhouse temperature; 50° at night and 5° more in the daytime is however, quite enough for them. Let them have a light position with ventilation upon all favourable occasions, but avoid subjecting them to currents of cold air after they have made young leaves, as they will be liable to attacks of mildew.

Plants of *Stephanotis floribunda* that are not too vigorous in growth produce the greatest quantity of flowers, and as the flowers are valued for cutting and are very useful in winter and early spring. Plants that have made an early growth, been well exposed to light, and kept somewhat dry for a time, will be furnished with a quantity of well-ripened shoots that have shown flower spurs in autumn, having them now fresh upon the plants. Such subjected to a night temperature of 65° to 70° and 5° more by day, will soon develop the flowers. If the soil be dry give a good soaking, but do not syringe them much. Plants having the wood well ripened but not furnished with bloom spurs should be syringed once a day; they will commence growing immediately, and the wood being well ripened will show bloom at the second joint of growth. Plants in small pots should not be repotted now, but supplied with liquid manure, deferring potting until after flowering, when it can be done before the summer growth is finished.

Bougainvillea glabra produces a quantity of flowers for cutting, and is an excellent companion to *Stephanotis* both as regards variety of colour and duration. Plants that have had the wood well ripened, kept dry, and rested for about a couple of months, on being well soaked at the roots will commence growth immediately, and be in bloom in about eight weeks. All the weak shoots should be cut out, as the flowers are only produced from the strong wood.

THE BEE-KEEPER.

ODDS AND ENDS.

Hiving Swarms.—It is fortunate for bee-keepers that swarms on leaving their parent hives generally alight on trees, bushes, or hedges, and remain there for a while; but nobody can tell why or for what purpose they alight on such places, nor how long they would remain there if left to themselves, but wise and experienced bee-masters hive their swarms as soon as possible after they settle in clusters. The position and surroundings of swarms determine the mode of hiving them. If a swarm settles in the thicket of a hedge a hive is placed over and as near to it as possible, that the bees may run up and into it. If a swarm alights on a branch of a tree and hangs from it the bees are easily shaken into a hive. If an apiary is surrounded by lofty trees swarms often alight near their tops and are inaccessible. Last year I had many swarms

that alighted on the tops of trees beyond the reach of the longest ladder in the neighbourhood. In such cases the branches had to be cut 10 and 12 feet below the swarms and gently guided down to the ground, and there the bees were hived. When swarms settle on the trunks of thick trees it is often difficult to hive them, as they may decline to run into hives propped up or tied above them. If the swarms are near the ground and will not run into hives we sweep the whole swarm to the ground and place a hive over them. In all large apiaries a few pieces of comb well cemented to a small board tied to a long stick or pole should be kept for use in hiving swarms. By holding this board so as to touch the swarms as soon as they settle the bees begin to cluster round the combs, and by making well-known sounds entice their companions to leave the branches. By using such boards swarms in almost every conceivable place may be reached, carried to the apiary, and there hived. These boards should have a few small pieces of comb cemented on both sides.

The Size of Hives.—This is a point of great importance but difficult to determine. How many eggs do queen bees lay? Are the hives capable of enlargement? Is the apiary managed on the swarming or non-swarming principle? Is it run or comb honey that is aimed at? Queens have been known to lay three thousand eggs in a day, but two thousand may be considered a fair day's average production of eggs in the height of the season. If hives are small half the eggs laid by the queens cannot be set or utilised. There is not room for them, even if not a cell were used for honey and pollen. In good honey seasons about half the combs are used for honey and pollen, thus contracting the breeding spaces in hives of considerable dimensions. Small hives, then, are a mistake, and may be considered outside the sphere of intelligent and thorough-going practice. A gentleman in the neighbourhood of Wrexham wrote a few weeks ago to ask if 16-inch hives were not too large for that locality. We answer that if honey or profit be the object sought hives less than 16 inches are too small for any locality. A gentleman at Wimbledon told the readers of the *Journal* that he took 100 lbs. of run honey from a 20-inch hive one season. Hives 16 inches wide and from 12 to 14 inches deep, containing from 2000 to 3000 cubic inches of space, are what I generally use and recommend. They are small enough in good seasons and large enough in bad ones. In honey seasons these capacities are not so great as their capabilities: they have to be enlarged by supers and ekes.

Can a District be Overstocked with Bees?—Yes, however rich the pasture may be. But very few districts, if any, in Great Britain are overstocked. In poor localities bee-keeping does not pay, and few hives are kept there. In better places for honey, where bee-keepers are well instructed and successful, we have seen the list of apiarians enlarged and the number of stock hives increased, but many beginners on being stung once or twice become afraid of bees, sell their stocks, and give up the trade. Many more people would keep bees but for their stings; but probably if bees had no stings their number would rapidly decrease, their treasures are so coveted by men, vermin, or small animals, and their bodies by birds. That we have honey bees at all amongst us is probably owing to the fact that they have stings and know how to use them. The question of over-populating a district with bees is a difficult one to deal with. Some American apiarians reckon that from 100 to 150 hives are enough to keep in one place, and if more are kept the pasture would be insufficient. The bee-keepers of this district (Bowdon) have about one hundred stock hives; in my native place (Carlisle, Lanarkshire) about the same number were usually kept, but I have not heard complaints made in either place about overstocking. In both places strong hives in honey weather gather 5 lbs. each per day. But it is reasonable to say that the fewer hives are kept in a given place the richer the pasture will be, because fewer visits will be made to the flowers. Bees go a mile and a half from home for honey and work over all the fields, orchards, and woods within such circumference. If bees have not flowers enough within a mile and a half of their hives they should be removed to other pasture two or three miles distant. Large apiaries should be at least three miles apart. The introduction of Alsike Clover and the quantity used in Cheshire instead of the red Clover has greatly improved the pasture of bees in this neighbourhood, and probably in others as well. Unfortunately we have no Heather near Bowdon, the Glossop Moors being twenty-five miles distant, and Delemere Forest about twenty. Heather is so rich in honey, and yields it so fast to bees in August and September, that it is all but impossible to overstock a good Heather district during these months.

Under-feeding or Spare Diet.—We have been told that on the gravestone of the late President Lincoln it is stated that "no man ever regretted eating too little." This may be true or otherwise,

but it is well known that many hives of bees which have not been utterly destroyed from want have suffered much from not getting food enough. During the last ten years we have had so many unfavourable seasons for honey, that almost all bee-keepers have had to feed their stocks to keep them alive. In the year now passing away feeding has been the chief concern of the apiary. If we be favoured with a run of good seasons for honey in future, and I hope we may, we cannot expect the run to be unbroken. Bad seasons may come and feeding may be necessary, and it may be well to point out the dangers of inattention to feeding in time of need. Bees that are half fed do not prosper. Is it reasonable to expect bees to breed when they have not food enough for themselves? If the honey cells become empty breeding is stopped. In such a crisis hives suffer severe relapses, and often do not recover from them for weeks. For a hive full of bees and brood much food is required. Brood is heavy and can't be reared without much and substantial materials. During inclement weather artificial food should be administered liberally. All the bees of a large swarm cannot get a taste or breakfast on or out of a pound of syrup. A few weeks ago a bee-keeper in this place wrote to Epworth for bees to strengthen two stocks. He had a reply to this effect, that Mr. Addey would not send less than 20s. worth of bees. The Bowdon gentleman did not want so many, and he asked if I would take half of them. I consented, and the bees came. The day following I got my share, which were in a state of starvation. I instantly gave them a pie-dishful of syrup, which was soon taken. In removing the dish I saw at a glance that half the swarm was still unfed and starving, and while I was preparing more food all the bees left the hive as a hunger swarm. Pressed by hunger they had resolved to cast themselves on the world before the food was administered. This hunger swarm was speedily hived and well fed, and is now one of my pet stocks. Let bees be kept free from the discouragements of poverty.—A. PETTIGREW.

TRADE CATALOGUES RECEIVED.

James Carter & Co., 237 and 238, High Holborn, London.—*Vade Mecum for 1883 (with coloured illustrations).*

S. Dixon & Co., Hackney.—*Catalogues of Chrysanthemums, Roses, and Miscellaneous Plants.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (H. T. H.).—We thought everyone interested in flowers knew that Mr. Cannell's establishment is at Swanley, Kent. The address has appeared in our advertising column probably fifty times during the past twelve months.

Anemones (A Working Man).—The parcel has arrived, and we are obliged by your kind attention in this matter.

Seedling Apples (Cosmyne Moore).—Although the varieties may be serviceable in your district, inasmuch as they may be free bearers, yet neither of them possesses sufficient merit for placing in commerce. No 1 is of fair quality, but No. 2 is very soft in the flesh, and has a peculiar musty flavour.

Admission to Exhibitions (R. O.).—Fellows of the Royal Horticultural Society and others having tickets have admission both to the Shows at South Kensington and to the Gardens at Chiswick. Persons are also admitted to the Shows by payment at the turnstiles, the prices on the respective days being announced in advertisements. Your other question will be answered next week.

Inarching Vines (J. D.).—If you have read what we recommended you to obtain last week, and require further information that you will specify, we will readily aid you, but we cannot give in a short reply such full details as you will find recorded in the number of the Journal we quoted (617), which can be had from the publisher, price 3½d. post free.

Chrysanthemum Sport (W. A. W.).—The large blooms are comparatively worthless. It is only by retaining the character of the smaller flower with broad incurved petals that the variety can be regarded as good. A further trial is evidently needed before the true value of the sport can be determined.

The Oldest Rose Tree (Curio).—One of the oldest Rose trees of which

we have any record is one that is described as being trained upon one side of the Cathedral of Hildesheim, in Germany. The root is buried under the crypt, below the choir. The stem is a foot thick, and half a dozen branches nearly cover the eastern side of the church, bearing countless flowers in summer. Its age is unknown, but documents exist which prove that the Bishop Hezilo, nearly a thousand years ago, protected it by a stone roof, which is still extant.

Cypripedium insigne (R. G. W.).—Our opinion of the flowers and leaves you sent is that the plants from which they were taken must be in excellent condition; such vigour could only be produced by the best cultivation. It is not uncommon to see twin flowers produced by vigorous plants, and some regard that as a distinct variety, but unless liberally treated the flowers only come singly.

Gathering Mushrooms (H. C., Hemel Hempstead).—It is not necessary to fill up the cavities that are formed by pulling up the Mushrooms; on the contrary, some growers make them larger with a knife. See the notes and illustration on page 169 of our issue of August 24th of the present volume. If you do not possess that number a copy can be had from the publisher in return for 3½d. in stamps.

Stocks for Vines (T. A., Derby).—All the varieties you name make good stocks, and you need not hesitate in carrying out your plan; but we should place Gros Colman on one of the Muscats. The Muscat forms a good stock for most Vines. For information on inarching see our reply to a correspondent last week, also in our present issue.

Painting Wire (Idem).—In those districts where galvanised wire is injurious to trees the coat of white paint is beneficial; and if the wire in your case has had any noxious effects, by all means paint the wire as you propose.

Climbers for Wall (R. C.).—Most of the plants you name are not sufficiently hardy for your district. There are no evergreen plants that cling to the wall except Ivies, and the variegated forms are highly attractive. Crataegus pyracantha is an excellent plant for walls, and we know many examples 30 feet high. Cotoneaster Simmondsii is good and effective. The common white Jasmine would succeed, and the Honeysuckles named last week are also quite hardy.

Ivy for Walls (Arbor).—There is no climbing evergreen that will be so suitable for your purpose as the common Ivy, and though we have known many walls covered with Ivy to which cattle had access we have never known them injured by eating the foliage. The leaves have a bitter taste but are not poisonous, as they have been employed in medicine as a dressing for cutaneous eruptions. The berries have an acidulous, resinous, and pungent taste, and are said to be purgative and emetic. They contain a principle called pederin, which is similar to quinia.

Temperature for a Greenhouse (F. J.).—Provided the temperature does not fall below 40° early in the morning the plants which you name will be quite safe, but to insure that it must be from 45° to 50°, according to the weather, at ten o'clock at night. As a rule a night temperature ranging between 40° and 45° is the best for ordinary greenhouse plants in winter, allowing a rise of 5° from fire heat alone in the daytime. During bright days the house will often be warmer than that without fire, but judgment must be exercised in providing artificial heat sufficiently early in the afternoon to prevent the temperature suddenly falling too low and involving hard firing to increase it. Damp is often injurious in greenhouses, and it is a good plan to occasionally heat the pipes on a bright and mild day so that the top ventilators can be freely opened for the dissipation of moisture. Provided there is no danger from damp you will do well not to use any more fuel than is requisite for preventing the temperature falling below 45° to 40° at night, nor should it exceed by fire alone 45° to 50° during the day.

Preparing Manure for Mushrooms—Site for Beds (W. G.).—When manure is prepared in large quantities, amounting to upwards of three or four cartloads, it may be prepared quite as well in the open air, as if preparing it for an ordinary hotbed, as in a shed; but with small quantities a covered place is advantageous—indeed, often indispensable. The space under a bridge, boarded-up at each end, would be very suitable for growing Mushrooms; and if room could be found for a heap of fermenting materials in preparation for successional beds, the heat thus imparted would be sufficient, and the atmosphere would be in the best condition for the crops. Heat thus afforded would be far better than that provided by any apparatus.

Gladioluses Growing Prematurely (W. N.).—As the corms have produced roots from 1 to 2 inches in length, and top growth is commencing, they had better be potted, as if they remain where they are they will spoil, and removed to a dry room the roots will shrivel. As you have no frame or greenhouse the pots had better be stood on a hard base, or on ashes, impervious to worms, in the open air or in a very cool cellar, and cover them 3 or 4 inches thick with cocoa-nut fibre refuse. The growth will then be slow and sturdy, and in March, or when the weather is favourable, the plants can be turned out of the pots and planted carefully in the garden. The soil, if moderately moist, as it should be when used, no water will be needed until the pots are withdrawn from the fibre. This material is very cheap and useful in gardens. Pots 3 to 4 inches in diameter will do, according to the size of the corms.

Specimen Chrysanthemums (T. M., Cheshire).—The cuttings are best inserted singly in small pots, which may be done now, or when sturdy cuttings can be had. After they are well rooted repot them into 48-size pots, but do not stop them until they are 6 inches high. Be very careful when you stop them only to just take the smallest point out, so as to get as many shoots as possible. If stopped roughly, pieces about an inch in length being removed, only a few shoots will be produced, and consequently time lost. Place a small stick to each plant to keep the main stem erect. After the shoots have grown about 4 inches take the points out again. Place a piece of twine under the rim of the pot to tie the shoots down to. Be careful in tying that they do not break away from the main stem, as they are apt to do if not prevented by placing a tie round the base of each shoot to the main stem or stick. It is of importance that the plants be kept in a free-growing state always. Repot as required, and apply water carefully yet sufficiently. A 12-inch pot will grow a large specimen. As the shoots from each stopping attain a length of about 6 inches take the points out and keep the shoots well down in the early stages of the plant's growth, when the after-training will not be difficult. The last stopping should be done about the end of June. Each plant should carry sixty good-sized flowers, consequently you will require sixty shoots. Remove all suckers as they appear till after the flowering period. Some societies are very particular in having a clear stem from the rim of the pot to the first tier of branches. After the plants have been disbudded and the blooms are commencing to expand finally tie them into the required shape. Some growers take those plants that have been grown on the single-stem system for large blooms, and cut them down to about

12 inches. After they have broken well on the stem shake them out, and place them in small pots, and stop and repot as recommended for cuttings. The plants often come stronger under this system, but are apt to throw up suckers frequently, which should be removed. We shall shortly publish further notes on Chrysanthemum culture that will probably be useful to you.

Pines Unhealthy (F. C.).—We thought we had never advised the liquid manure which you have given to the plants. Weak guano water is very different from the decidedly strong applications that you have afforded. You have no doubt given it too strong by half, and also probably more often than it was needed, even if it had not been strong. So far as we understand the state of the plants, they have been overwatered, overfed, and, according to the temperatures you submit, underheated. If you refer to page 512, November 30th, you will find the proper temperatures advised for such plants as yours. The bottom heat is correct, but the top heat is at the least 5° too low for plants kept so moist as yours have apparently been. It is only when plants have been prepared by skilled cultivators that they can be kept healthy in a temperature of 55° and falling as low as 50°. Raise the temperature to 60°, and little water given once a fortnight or less frequently will suffice for the next two months, especially if the pots are plunged. Provided you can maintain the present temperature at the roots there is no necessity for introducing fresh leaves and the attendant slugs. The small work we advised would be of great service to you in your efforts at Pine culture. No one without seeing your plants can tell whether they are likely to fruit or not in the spring. They probably will not, and if they do the fruits will be small. If the Passiflora cuttings are in a pot remove it to the greenhouse; if in the open ground, cover them with a handlight and protect from severe frost.

Autumn and Winter-flowering Heaths (R. L. B.).—Three of the most useful Heaths for your purpose are *E. hyemalis*, *E. gracilis autumnalis*, and *E. melanthera*, which are quick-growing, easily increased plants, and flower most abundantly. Their value is indicated by the fact that many thousands of these Heaths are now sent to Covent Garden Market, as there is a good demand for plants of moderate size in 48-size pots. Of the dwarf compact *E. gracilis autumnalis* numbers of plants are grown in 60-size pots, and prove valuable for decoration as a margin to groups or in the front rows of stages. A small spray of this plant is shown in the woodcut (fig. 98), the flowers being rosy purple. *E. hyemalis* has longer crimson flowers thickly clothing the branches; and *E. melanthera* has small bell-shaped flowers produced in great numbers of a lilac colour with black prominent anthers. All of these may be treated similarly, a compost of light fibrous turf and peat with sufficient sand to insure good drainage.



Fig. 98.

Planting and Pruning Apple Trees (W. Hawley).—Under the circumstances we do not perceive that you could have adopted a better method of planting than the one you describe, and by mulching you may keep a number of roots near the surface. Long manure is suitable during the winter, but in summer short manure placed over a sprinkling of bone dust or wood ashes will be more effectual in inciting root-action and affording food for the trees. Digging incautiously amongst fruit trees and permitting the surface of the soil to become dry in summer is certain to result in the roots penetrating downwards in search of moisture. In mulching it is important, in summer especially, that the material be spread

at the least 6 inches, and a foot is better, beyond the extremities of the roots, otherwise they will inevitably turn downwards when they reach the dry radius, and cannot be brought near the surface again without manipulative aid. Even with all the care you may take in mulching it may be necessary, and will probably be advisable, to lift the trees, say about every third year, and place their roots near the surface, but this can only be determined by the condition of the trees. It is not easy to give definite advice on pruning, but we do not hesitate saying that as much harm as good is done by the use of the knife. Skilled cultivators can and do prune to good effect, but the unskilled prevent the production of fruit in their efforts to produce it. It is better not to prune at all than to do the work as it is too often done by those who own, or are placed in charge of, fruit trees. If your primary object is to produce fruit, and not to train the trees to any particular form, and keep them to a certain small size, we should prune but slightly, only removing any misplaced branches and to prevent overcrowding, at the same time shortening the ends of any shoot here and there that marred the symmetry of the trees. This may be done at any time when the weather is mild.

Sowing Fern Spores (F. R.).—The spore-bearing fronds should be carefully examined, and as soon as they appear to be approaching maturity—that is when the spore cases become brown, and before the spores are liberated, the fronds should be cut and placed upon a sheet of paper in a dry position, each species or variety separately, and the spore side downwards. It is, however, often preferable to place the frond upon the surface of the soil in the pot intended for the spores. The soil previously to being placed in the pans should be well baked or exposed to the action of fire sufficiently to consume all organic substances it may contain, also to destroy the spores of common strong-growing Ferns, which often overpower and either greatly injure or kill the weaker sorts. This process also serves to destroy any fungi that may be present, and which would otherwise prove injurious to the Ferns. The pots must be liberally drained, placing a large crock hollow side downwards at the bottom, then half fill with rough potsherds, covering these with a layer of smaller pieces, and on these may be placed the soil, rendering the surface firm and smooth. Water it

sufficiently to thoroughly soak it, and allow it to stand for a day or so before sowing the spores, which may be done as already stated, either by placing the fronds on the soil or by gently shaking the papers on which they have been lying over it. Each pot should then be covered with a piece of glass and placed in a pan containing about an inch depth of water, which will rise through the soil by capillary attraction, and keep it sufficiently moist, as watering on the surface must be avoided until the young Ferns appear. These directions must be carefully followed for all the delicate species and varieties; but there are some, such as the common Pterises, Adiantums, and Gymnogrammas, which require very little trouble, and germinate most readily. Spores of stove and greenhouse Ferns should be sown in a temperature of 60° to 65°; the hardy sorts can be sown in a frame or any cool house. There is great difference in the time required for the germination of Ferns: some species appear in a week or two, while others are several months, and instances have been recorded where Ferns have remained in the prothallus state for several years before fronds have been produced. You are probably aware that the prothallus is the small green cellular expansion which first appears after the germination of the Fern; and in the case of strong-growing species, if they are too crowded a few may be carefully removed with some of the soil attached, and placed in a large pan, as the space thus afforded often ensures a more rapid advance in those moved, and also in the others.

Raising Oranges from Seed—Grafting (Idem).—Oranges can be readily raised from seed, but you cannot insure obtaining plants that will resemble the parent variety, as, like so many other plants, they vary greatly from seed, and too frequently revert to a coarser and worthless type. However, as you only have seeds, there is no other course open to you. Light sandy soil is the best to sow the seeds in, just covering them, and place the pots in a stove or other warm house until the seeds have germinated. When several leaves are formed the young plants may be potted singly in small pots, and grown in a warm moist atmosphere, employing good turfy loam and a little well-decayed manure, similar treatment being needed as the plants advance. The difficult part is that you would have to wait several years before being able to judge the merits of the variety, as the Orange does not fruit in a very young state under cultivation. It is therefore usually preferred to obtain scions of small known variety, and graft these upon seedling stocks. This might be done in your case when the plants are two years old, and they may be either cleft or side-grafted, early spring being the best time for the operation. The stock and scion should be placed in a propagating house and shaded until they are united, when the plants may be removed to their old quarters, and heated as advised for the seedlings.

Forcing Seakale (Marton).—Pots are convenient but not "absolutely necessary," indeed in all probability far more Seakale is produced every year without the aid of pots than with them. A Seakale tub was shown in our columns a month ago, but even that appliance can be dispensed with. We have used open crates, and have seen fine Kale produced by inserting a few sticks slantingly round the crowns, bringing the points of the sticks together pyramid fashion, and covering with long litter previously to adding the fermenting materials.

Avocado Pear (J. Roberts).—Fruits of this plant may be occasionally seen in Covent Garden Market, but they are only introduced in small quantities and as a curiosity. The tree which produces them is *Persea gratissima*, specimens of which may be seen in the Palm house at Kew; but we are not aware that plants have produced fruit in this country.

Names of Plants (Keswick).—The specimen you have sent is of *Gnaphalium germanicum*, the common Cudweed, and may have been introduced in the manner you suggest. Grass and Clover seeds should be obtained from the best sources. There is nothing more costly than cheap seeds. (*H. M.*)—The spray bearing berries is *Ruscus aculeatus*, the Butcher's Broom; the other is *Euphorbia Lathyris*, the Caper Spurge. (*Stephanotis*).—1 and 2, *Adiantum Capillus-Veneris*; 3, *Asplenium cicutarium*; 4, *Selaginella caulescens*; 5, *S. cuspidata*; 6, *S. Martensii*. (*Bedland, Bristol*).—1 and 2, *Blechnum brasiliense*; 3, *Nephrolepis davallioides*; 4, *Adiantum macrophyllum*; 5, *Rivina humilis*; 6, *Eupatorium odoratum*. (*A. B., Surrey*).—1, *Bouvardia longiflora*; 2, *Bouvardia Hogarth*; 3, *Eupatorium odoratum*; 4, *Abutilon vexillarium*; 5, *Selaginella Kraussiana*. (*R. O.*)—1, *Odontoglossum Alexandrae*; 2, *Cypripedium insigne*; 3, *Cypripedium insigne Maulei*. (*X. L.*)—1, *Adiantum Luddemanianum*; 2, *Blechnum coreovadense*; 3, *Salvia leucantha*; 4, *Salvia splendens*.

COVENT GARDEN MARKET.—DECEMBER 20TH.

Our market has been well supplied with all classes of goods, prices remaining the same; and the extra demand for Christmas is well met by the supplies.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	4 sieve	2 0 to 7 0	Grapes	lb.	0 to 5 0
"	per barrel	20 0 40 0	Lemons	case	20 0 30 0
Apricots.....	doz.	0 0 0 0	Melons	each	2 0 3 0
Cherries.....	4 sieve	0 0 0 0	Nectarines....	dozen	0 0 0 0
Chestnuts.....	bushel	10 0 12 0	Oranges	100	6 0 10 0
Currants, Black..	4 sieve	0 0 0 0	Peaches	dozen	0 0 0 0
" Red.....	4 sieve	0 0 0 0	Pears, kitchen ..	dozen	1 0 2 0
Figs.....	dozen	0 6 1 0	dessert	dozen	1 0 2 0
Filberts.....	lb.	0 0 0 0	Pine Apples, English	lb.	2 0 2 0
Cobs.....	100 lb.	45 0 50 0	Raspberries	lb.	0 0 0 0
Gooseberries	4 sieve	0 0 0 0	Strawberries	lb.	0 0 0 0

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Lettuces	score	1 0 to 1 6
Asparagus.....	bundle	0	0	0 0	Mushrooms	punnet	1 0 1 6
Beans, Kidney....	100	1	0	0 0	Mustard & Cress ..	punnet	0 2 0 3
Beet, Red.....	dozen	1	0	2 0	Onions.....	bushel	2 3 2 6
Broccoli.....	bundle	0	9	1 6	Parsley.....doz. bunches	3	0 4 0
Brussels Sprouts..	4 sieve	1	6	2 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0	6	1 0	Peas	quart	0 0 0 0
Capsicums.....	100	1	6	2 0	Potatoes.....	owt.	6 0 7 0
Carrots	bunch	0	4	0 0	Kidney.....	cwt.	6 0 8 0
Cauliflowers.....	dozen	2	0	2 0	Radishes.... doz. bunches	1	0 0 0
Celery	bundle	1	6	2 0	Rhubarb.....	bundle	0 4 0 0
Coleworts.....doz. bunches		2	0	4 0	Salsify.....	bundle	1 0 0 0
Cucumbers.....	each	0	6	1 0	Scorzonera	bundle	1 6 0 8
Endive.....	dozen	1	0	2 0	Seakale	basket	2 6 3 0
Fennel.....	bunch	0	3	0 0	Shallots	lb.	0 3 0 0
Garlic	lb.	0	6	0 0	Spinach	bushel	3 0 0 0
Herbs	bunch	0	2	0 0	Tomatoes.....	lb.	0 8 1 0
Leeks.....	bunch	0	3	0 4	Turnips	bunch	0 2 0 0



POULTRY AND PIGEON CHRONICLE.

MAXIMUM WEIGHT FOR AGE OF CATTLE AND SHEEP.

HAVING previously on the 20th of July last given an account of maximum produce of farm crops, we now propose to furnish an account of the maximum produce of farm stock. We shall illustrate the subject by examples and practices connected therewith from some of the best stock-feeders in various parts of the kingdom. This matter is of the highest importance to those engaged in the breeding and feeding of cattle for the home markets, and as at this period when the best specimens have lately been exhibited at numerous shows throughout the country, including Birmingham and the London Show in Islington Hall, and are sold chiefly for consumption at Christmas

The practice of feeding cattle for "baby beef" seems to have become prominent, and first mentioned in the home and southern counties. We find the first honourable mention is made by Mr. Henry Evershed, in reporting on the farming of Surrey and other counties in the Journal of the Royal Agricultural Society of England in 1854, states—"Of the example farm of Mr. Cyrus Ellis of Great House Farm, Hambledon, in Surrey, who was then a producer of young beef on a sand farm, he with others in his neighbourhood still continue the practice, for by the plan of early fattening Mr. Ellis avoids summering the cattle a third season; the calves are allowed to run out in the arable fields as soon as the Rye is ready for them, afterwards they get cake in the pastures. The fattening bullocks are started on early Turnips by the middle of September." It is further stated that if the animals are to attain the earliest possible maturity they must remain at all times in their sheds or boxes placid and undisturbed. They must not be turned out for exercise either in summer or in winter. The experiment was tried of keeping one lot in, and turning another on the best grass during the most favourable period of the summer. At the end of summer those kept under cover were worth about 30s. each more than those fed out of doors, the feeding having been the same except the difference in the fodder. There is no doubt about the value of this experiment and its results as to early maturity. It is unfortunately without any record of the weight of animals at a given age; still the early lesson thus laid before us is not without its value, as evidenced by several instances which we shall bring to notice, for Mr. Evershed, in writing his essay in the Royal Journal in 1878 on the early fattening of cattle, states, "That Mr. Joseph Blundell of Southampton set an early example in the production of 'baby beef' in South Hants in 1857, and read a paper on the subject before the Royal Agricultural Society, June 18th, 1862."

The following is his treatment:—"My calves are weaned at a few days old, fed with new milk at first, gradually introducing the skim milk, linseed cake meal and barley meal, with a little sweet meadow hay for a time in the rack allowed them, until they can safely take to green fodder, which they get in succession—first Rye, second Trifolium, third Clover, with a portion of old Mangold, then early Turnips. To commence the winter they get hybrid Turnips, Carrots, or Swedes, and lastly Mangolds, until the green fodder comes in again; being supplied with clean fresh Oat or Barley straw always in the rack whilst feeding either on green fodder or roots, the portion not eaten being removed for littering

the boxes daily. As soon as they begin to take green fodder they are allowed a small portion, say 2 lbs., of cake meal per day, mixed with the old Mangolds, which are cut with Gardner's Turnip cutter. As soon as root-feeding commences they get 4 lbs. of cake meal per day, and continue to receive this quantity until they are sold—at from eighteen to twenty months; having, however, during the last three months 1 lb. of bean or barley meal extra. But at no time after they once take to their green food are they allowed hay, as this would be found to absorb the profit and injure the health of the animals also, for since I adopted the method of straw-feeding I have never had an animal hoven or unhealthy. The quantity of roots given the first winter is 56 lbs. per day, the second autumn not more than 64 lbs. per day, the meal being always mixed with the cut roots. In this way each kind of food is more beneficial to the animals, and when only fed twice a day they have plenty of time to lie down and digest their food, and will return to the troughs with a good appetite, and will eat a good portion of clean straw." Mr. Blundell has frequently obtained prizes for young stock at the Easter cattle show of the Botley and South Hants Farmers' Club, and has published one instance of a first-prize Shorthorn heifer which he sold to Mr. William Lunn of Southampton, at eighteen months and three weeks old, weighing 98 stone 6 lbs., with a great weight of fat inside.

This selection of Mr. Evershed's is well calculated to induce farmers to excel its results if they can, and we shall show how far this has been since accomplished as we proceed to give further experience of cattle-feeders taken from his essay. Messrs. Drewitt and Son of Pickard's Farm near Guildford, who have furnished details of feeding, &c., say:—"When the calves are weaned they get whilst on grass 2½ lbs. of linseed cake each daily. In October they commence feeding in yards with the same allowance of cake, with one-third of a bushel of Swedes or Mangold daily, straw, and rough hay. After the second summer on pasture with the same quantity of cake they are prepared for the butcher, with 1½ bushel of roots daily, 5 or 6 lbs. of linseed cake daily for three months, and afterwards at the finish 5 or 6 lbs. of peas or barley meal in addition. At a little more than two years old useful Shorthorns thus kept nine of them were sold to Mr. Colebrook, butcher of Guildford; the heaviest steer was just 105 weeks old, and weighed 122 stones 2 lbs. At a sale of young common country-bred cattle fed by Mr. Stanford of Carlton Court, Sussex, seven Shorthorns were sold; the best animal of the lot was sold to Mr. Page of Partridge Green, which gave 8s. per week to the feeder, weighing 132 stones at one hundred weeks old. It is, however, considered a fair average weight for animals well fed from birth to yield 100 Smithfield stones of 8 lbs. at one hundred weeks old."

Although it is often stated that old beef as well as mutton is to be preferred, yet the quality of all meat, however, depends greatly upon management and the mode of feeding. The evidence of Mr. Port, the butcher of Ship Street, Brighton, who supplies a superior class of customers, states that some bullocks from Mr. Stanford's at Carlton Court, purchased on June 12th, 1874, at nineteen months and a half old weighed 100 stone 4 lbs., and that when slaughtered proved the most complete carcasses of beef, and the meat gave every satisfaction to the consumer, being very tender and of delicious flavour. Much more evidence of a similar nature is obtainable, but we have given enough to prove not only the advantage of making young beef to the feeder but to the consumer also. Still there remains the practical point of detail in feeding and the cost; for it will be noticed that in Mr. Blundell's mode of feeding, and the cost of the material and quantity allowed per day is much less than in the case of Messrs. Drewitt and Sons on their plan of feeding, or on Mr. Stanford's allowance for his young animals. There is, however, a further question to be considered, that of housing, because in our experience for many years when we desired to make young beef we always fed them at full head as calves, and continued such mode of feeding—namely, at full allowance of the best of food, but the animals were always on the straw in boxes or sheds under cover, which latter plan is the only way to obtain the full benefit of liberal feeding, for young animals in particular.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Since our last statement there has been continued delay as far as preparing and sowing the land with Wheat is concerned. In many counties the reports state that not one-half of the land intended for Wheat has been sown, and that much which has been sown cannot produce an even plant, for the rains have been so heavy and continuous that much grain will perish in the land. The Wheat plant is, however, a very hardy one, and will bear various changes from frost to thaw, but heavy rains occurring immediately after sowing settles the ground over the grain on strong soils so

closely that the seed cannot germinate. Should there come a change of open weather to enable the sowing of Wheat to be again commenced, a larger quantity of seed (not less than 3 bushels per acre) should be sown, for when late sown the birds are sure to destroy a portion of the young shoots as they first appear above ground. The home farmer need not hesitate about sowing Wheat from this time until the first week of February on the dry soils of the eastern, southern, and home counties if a favourable season occurs, because if the land can be harrowed so as to bury the seed, the heavier and closer the land lies the better, for it prevents the growth of various weeds. The great objection to sowing Wheat late, especially in the latter part of February or March, is when the land is too dry and light, for then the land does not furnish a firm root-holding for the young plant, but it also favours the growth of numerous weeds, which are indigenous to some soils. If the season should still continue quite unfavourable for sowing the land with Wheat, the land may then be (especially on strong clay soils) sown with the black Tartar Oats. Drege, however, will give the greatest quantity of grain, and if the newly-selected white Tartar Oats are mixed with the long-eared American Barley the yield will reach the outside of produce, and the straw will be valuable fodder. If the land is sandy or gravelly Barley may be sown alone if the season be favourable. Still we think that Oats or drege offer the best substitute for Wheat, because we expect when the land is in good condition that as many quarters of Oats will be grown as sacks of Wheat, which at present prices will make as much money, and it is more likely to be the case when Oats or drege is sown upon land previously prepared or intended to have been sown with Wheat.

Horses have been lately employed in drawing out couchy earth or earthy composts on to the pastures without injury during frosty weather. When the weather has been wet the drawing of earth from various sources to heaps for future mixture with yard dung has been done, and has filled up the odd time with advantage if parties are prepared to make a good use of the earth hereafter. Not only do we recommend it for mixture with dung as compost for grass land, but we advise that it should be used at the bottom of all pens where cattle are housed, but also on the floor of the pig pens and cart-horse stables, sheep folds for lambing yard, breeding sows' yard, also the farmyard or cattle-yards, and also for use upon all sites for making dung heaps. The value of earth if properly placed as an absorbent of liquid manure and urine of animals is not sufficiently regarded by farmers in general, and the loss which has occurred in all old-fashioned farmyards during the late autumn rains has been very great. Before we can expect the home farmer to agree with us to the full extent in these matters he must accept our ideas as correct—namely, that every cubic yard of earth saturated with urine under cover will contain as much of the elements of manure as 2 cubic yards or cartloads of farmyard straw-made dung.

Hand Labour.—In all open weather let the women or old men go fork in hand and look over all land where lumps or bunches of Couch-grass or black Bents prevail, also the Onion-grass and Docks. All these, whether on the fallows or between the Turnips and Swedes, before feeding with sheep should be forked out and carried to small heaps first, and afterwards be cleared away with horse and cart the first opportunity. Some hands will be required in fine weather to attend the threshing machine, for we advocate the threshing of the greater part of the corn during the winter months, because the hands should not be displaced or taken away from important farm work in the spring or summer months.

Live Stock.—Much extra attention has been required during the prevalence of snow and frost. All young cattle of a year and half old intended for young beef should now be well fed under cover, so that they may be ready for sale from the middle of June to the middle of the month of August, as beef always sells well at that period, especially of light weights and nice quality. The Dorset Downs are now just lambing down, and will require the usual care, good lair, good food, both hay and Cabbage, but always with rock salt within reach, as it has been lately stated by good authority that even those ewes which had flukes in their liver have so far recovered after being fed with salt, iron, &c., in their mixtures of cake and roots that when killed have on examination of the livers proved that the flukes had been destroyed and expelled from the liver, which exhibited the injury done and the healed surfaces which had been affected by these parasites. The lambing fold should be carefully made in a dry sheltered position, on slightly sloping ground, but the shepherd and his assistant should be prepared for attending day and night with the moveable shepherd's house or van properly provided. It is in those cases where many twins occur that extra attention is so much required both by night and by day, the assistant and the shepherd relieving each other at night time.

INDIAN CORN CULTURE IN AMERICA.—Indian Corn is by far the most important staple crop grown by the American farmer. Under present acreage in this country, with a favourable season, the annual Corn crop should be fully 1,800,000,000 bushels. Though its market value per bushel is less than that of Wheat, yet the aggregate value of the Corn crop is nearly, or quite, double that of Wheat. It is not, however, as a grain raised for sale alone that the importance of the Corn crop is manifest to the farmer. Indian Corn is the basis on which is produced a large proportion of the pork, beef, and mutton of the

country, while the production of butter, cheese, and wool is more or less dependant upon the feeding of Corn. These facts are brought more prominently to public notice in years like the present immediately following a season of general or partial failure in Corn.—(*American Cultivator.*)

POULTRY AND PIGEONS

CHOOSING A DORKING COCK.

I HAVE been asked to give the points by which I would choose a Dorking cock. It is a question not very readily answered in writing, as there is much that would be more easily pointed out in the live bird than defined by the pen in words. However, I will try. First as to carriage. He ought to carry himself up like the old-fashioned Game cock, not the low horizontal way in which the present mongrel does—the so-called Dorking. His tail should be carried well up and should be large and full, the larger the better, with fine long sickle feathers. One with a good Dorking tail is very difficult to find: I have scarcely seen any of late in the show pen. Next, his head should be large and his eyes bright; and his comb large, upright, with long even spikes, finishing with a rounded lobe at the back, but not drooping towards the back of the head like that of a Cochin, as many of the show birds do, but being well up and relieved from the head at the back. A very excellent type of this form of comb can be found in Bewick's "British Birds," vol. i., in the engraving entitled "The Domestic Cock," which also shows the carriage of the true Dorking. The neck should be of moderate length and well set on the shoulders, which should be broad, though not square like the Brahma, which makes the bird to look better than he really is, but it should have a rounded fullness. The breast should be deep, thick, well forward, full and rounded, having much more meat on than appears unless handled. The back should slope well towards the tail, as should the breast and sides, falling as it were to a point, so that the bird carries but little offal, bearing small or no resemblance to the show Dorking of the present, whose back often rises if it is not straight; and the great thickness from the back to the belly shows only too clearly the quantity of offal that it carries, which makes it weigh the more: at the same time it is a vastly deteriorated fowl. The thighs should be neither short nor long, but large and full and strong; the legs rather short than long, but not very short like a Bakie or Dumpy. If they are too short the young fowls are apt to get overwet in the grass, which is prejudicial to their health and well-doing. The bones should be fine and by no means thick: a large-boned Dorking is a mongrel *without any doubt*, and is coarse in flesh as well as bone. The colour of the legs should be a whitish flesh colour, the scales looking soft and of fine texture. The whole of the feet, and particularly the toe nails, should be white. A dark toe nail is a sure sign of cross-breeding, and *one* so coloured should *never be bought to breed from* by the true Dorking fancier. The toes should consist of five in number, and be even, strong, straight, not lumpy or gouty; and the fifth toe should be as long or nearly so as the middle toe in front, but turned up and nearly if not quite touching the back of the leg. This is an important point to notice, as many of the prize birds, even cup-winners, show clearly by their short straight fifth toe their mongrelism. The feathers should lie close to the body, any looseness betrays a cross.

Again. Another great point to notice and to be *utterly* avoided is a red earlobe. This is a sure sign of Asiatic cross, and on no account should be tolerated. Jaques, writing of the true Dorking about twenty years ago says, "The earlobe should be of a beautiful white, resembling the mother of pearl." This to my mind is a most excellent definition of the colour. If the bird possesses the above qualities take it in your hand, and I have not the slightest doubt you will find that it has a clear white *thin* skin, with flesh of a fine texture and white, with white fat. It will be said, possibly, that I have not mentioned colour, nor have I. Get all the qualities I have stated, the colour is the last, the least, and the most *useless* consideration. The so-called Dark Dorking of to-day is not a Dorking colour at all, but is got by crossing, and has been one of the causes of the spoiling of the Dorking; but so long as judges give to colour as a point, and so long as weak-headed critics of shows write such nonsense as "Good bird, bad in colour," or "Good, but we did not like the colour of his wing," &c., the Dorking proper will not be seen at the shows. The colours of the Dorkings were chiefly the Dark Grey, the Reds or Bays with rose combs, the Speckled, the Cuckoo, the Browns, Mottles, and the Whites. The Grey were the hardiest and finest birds and truly beautiful, the cocks being slightly chestnut on the

wings. The Bays were light red or speckled on the breast with light red hackles striped with black; the saddle dark red, and the tail coverts orange, with the larger tail coverts black edged with red, and the tail black, with a green and purple sheen on it; these had rose combs chiefly, and were very beautiful and for table excellent. The old Browns were much like the Black-breasted Red Game in colour, but not so bright. The Speckles were of three kinds—Red Speckles, Black Speckles, and the three colours mixed. The last were in great repute and were often seen at the Birmingham shows of five and twenty years ago, but the Judges have set up a standard of colour of their own, and the consequence has been the loss of the old breeds and the triumph of mongrelism. If for no other reason than this I for one am truly sorry that poultry shows ever existed; but there are others which I do not care to mention and are quite beside the subject in hand.

In choosing the Dorking cock be sure to bear in mind these things. Never buy to breed from a bird with the *slightest* tint or sootiness on the legs or feet—no, not even a *dark toe nail*, nor one with bright red sides to its legs: this is another sign of the mongrel. Nor ever buy one with a red earlobe. No true Dorking ever had one. An experience of fifty years teaches me this. My readers can be guided or not by me as they like, I only write what I should do myself. And now as I am writing I may say I feel sure that there will be, there *must be*, a reversion to the true old type of Dorking, and the present mongrel will be swept away as though it never existed. Already people think twice before they give the prices asked, and about here they decline altogether the show birds that breed these sooty-legged chickens. So it will be until this grand table fowl is purged from the crossings and intercrossings, and it again becomes the table bird it once was—the finest in the world.—HARRISON WEIR, *December 11th, 1882.*

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held on Wednesday, December 13th, 1882, at the Charing Cross Hotel, at 2 P.M. There were present Mr. O. E. Cresswell (in the chair), the Earl of Winterton, and Messrs. A. Comyns, S. Lucas, and C. F. Montrésor.

ELECTION OF MEMBERS.—The following new members were elected:—Mrs. H. J. Goodall, Melton Mowbray; T. Raines, Bridge Haugh, Stirling.

THE DISQUALIFICATION AT THE PALACE.—The Secretary reported that he had heard from Mr. C. Davenport Jones, who stated that he would abide by the decision of the Committee.

DORCHESTER SHOW.—A complaint as to the withholding of prizes at this Show, which had on several occasions previously been under the consideration of the Committee, was again brought forward. The Show was held under Poultry Club rules, and a subscription had been granted by the Committee in aid of the funds. It appeared that in the schedule published by the Committee of the Dorset County Poultry and Pigeon Society certain prizes were offered for competition without any condition as to the withholding of the same in case the entries should be below any specified number, the only rule as to withholding of prizes being the ordinary one, providing that "the Judge would be empowered to withhold a prize or prizes in any class in which there was not sufficient merit." It further appeared that when the Show authorities ascertained that the entries in certain classes were but few they instructed the Judges, and entered such instructions in the judging books, to the effect that as to these classes certain prizes should be withheld. Some of the Judges declined to follow these instructions except in cases where there was not sufficient merit, but at least one Judge followed the instructions and withheld certain prizes. He, however, awarded v.h.c.'s and h.c.'s in nearly every class in which prizes were withheld, thus clearly indicating that the prizes were not in his opinion withheld for want of merit. When the official list of awards appeared it became apparent that these v.h.c.'s and h.c.'s had been suppressed by the Show authorities, the only awards published as to such classes being the prizes actually awarded. This would seem to have been done to give colour to the withholding of the prizes as having been so withheld for want of merit, when they were in reality withheld at the arbitrary dictation of the Show authorities, acting in direct opposition to their own rules.

The Secretary of the Club reported he had written several times to the Secretary of the Dorchester Show, and had at length received a reply in the following terms:—

"Dorchester, 7th Dec., 1882.

"Sir,—I have the honour to acknowledge the receipt of your letters, and to inform you in reply thereto that the reason the Judges were instructed to withhold prizes in some of the poultry classes at the recent Show held in this town was owing to the very small number of entries. My Committee thought that as the competition was so very limited in some of the classes they were justified in curtailing some of the prizes, but upon further consideration they much regret having done so, as it has caused dissatisfaction amongst a few exhibitors, particularly with the President of your Club.

"I would respectfully remind those few exhibitors who have complained that, owing to the very heavy snowstorm during the Show held in January, 1881, my Committee had to pay no less than £60 out of their own pockets over it, and had the poultry exhibitors responded better to the very liberal prize list

offered them on the last occasion the Show would have been much more successful and satisfactory in every way."

The following resolution was passed:—

"That the Committee of the Poultry Club strongly condemn the action of the authorities of the Dorchester Show in directing the Judges, contrary to the rules published in the schedule, to withhold certain prizes irrespective of merit, and also in suppressing the v.h.c.'s and h.c.'s awarded by the Judge or Judges in these classes. That the Committee of the Club call upon the Committee of the Dorchester Show to publish an amended prize list, according as far as is now practicable with the prize list offered in their schedule and the rules printed therein, and to include in such prize list all exhibits to which v.h.c.'s and h.c.'s were actually awarded by the Judges. That in such prize list all the prizes offered by the schedule be awarded to the exhibitors in each class in the order of merit in which they actually stand in the judging book as far as is practicable, and that where in consequence of two or more exhibitors having been awarded v.h.c.'s or h.c.'s they have an equal claim to any prize or prizes, such prize or prizes be equally divided between such exhibitors. That the exhibitors be forthwith paid the amounts due to them respectively on such amended list as aforesaid."

The Secretary was directed to communicate this decision to the President, Vice-President, Chairman of Committee, Secretary, and Treasurer of the Dorset County Poultry and Pigeon Society.

STANDARD OF PERFECTION.—The Secretary reported that a large meeting of leading Game fanciers had been held at Birmingham during the Show for the consideration of the portions of the Game standard left unfinished at the Palace meeting. The further consideration of some questions connected with the standard was postponed.

ELECTION OF OFFICERS AND COMMITTEEMEN.—Instructions were given to the Secretary as to the annual election of officers and committeemen in place of those retiring by rotation on 31st December. The day on or before which nominations to the vacant offices are to be made was fixed for Wednesday, January 3rd, 1883. The following gentlemen retire by rotation:—The *President, the Secretary, and Messrs. T. W. Anns, O. E. Creswell, *J. C. Fraser, Rev. H. C. Fellowes, R. E. Horsfall, Rev. E. H. Morgan, L. Norris, and G. Vigers. The President and those members of the Committee whose names are indicated by an asterisk do not desire to offer themselves for re-election. There will thus be several vacancies for which candidates must be nominated. Candidates may also be nominated for other offices and for places on the Committee to compete with those retiring members who offer themselves for re-election. Candidates must be members of the Club, and must be nominated with their own consent by at least two members. Nominations to be sent to the Hon. Sec. on or before January 3rd, 1883.

NEXT MEETING.—The date of the next meeting was fixed for Wednesday, January 17th, at Charing Cross Hotel at 2 P.M.—ALEX. COMYNS, *Hon. Sec., 47, Chancery Lane, London, W.C.*

WATFORD POULTRY SHOW.—The annual Poultry Show of the West Herts Agricultural Society was held in connection with the Exhibition of Fat Stock on December 12th and 13th at the Agricultural Hall at Watford. The building is one of the best in the kingdom for an exhibition of this kind. The cattle and stock are on the ground floor, while the poultry are arranged in tiers in the gallery which runs round the interior of the Hall. The number of entries was not quite so large as usual, but the quality of the birds exhibited was said to be superior to the entries at any previous show. The cup for the best pen in the show went to Light Brahmas of Mr. G. H. Wood: these, however, were closely pressed by Mr. Bartrum's cup pen of Dorkings. The cup for Cochins was won by Mr. Breeze, for Game by Mr. Ross, for Hamburgs by Viscount Grimston, Bantams by Mr. Flitt, and Mr. Huish secured the cup in the Any other variety class with Polish.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
December.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	10	Inches.	deg.	deg.	—	deg.	deg.	deg.	deg.	In.		
		29.775	27.6	27.2	—	37.2	31.8	26.2	37.2	25.8		
Mon.	11	29.780	25.1	25.1	W.	37.0	31.7	24.9	29.1	27.2		
Tues.	12	29.737	29.9	29.5	S.E.	36.8	33.2	24.5	32.1	25.6		
Wed.	13	29.558	37.7	37.3	N.E.	36.5	43.6	29.8	45.8	30.0		
Thurs.	14	29.718	36.5	36.5	N.E.	36.3	40.0	35.9	41.7	30.5		
Friday	15	29.876	36.9	36.9	N.E.	37.0	40.3	35.7	41.4	35.1		
Satur.	16	29.915	42.6	42.4	S.E.	37.9	46.8	36.5	46.5	32.0		
		29.766	33.8	33.6		37.0	38.2	30.5	39.1	29.5		

REMARKS.

10th.—Frost, thick fog throughout.

11th.—Misty, dull, and very cold.

12th.—Dull and cold.

13th.—Dull and foggy; gleams of sunshine in forenoon; warmer.

14th.—Dull and damp; fog in morning.

15th.—Dull and foggy.

16th.—Dull, but not much fog; considerably warmer; rain after 9 P.M.

An extremely uncomfortable week, sharp frost in the early part, almost constant cloud, and a great amount of very dirty fog.—G. J. SYMONS.



28th TH
29th F
30th S
31st SUN
1st M
2nd TU
3rd W

1ST SUNDAY AFTER CHRISTMAS.
Sale of Bulbs at Mr. Stevens's Rooms, Covent Garden.

REPORTING PROGRESS.

It is the custom for individuals in whatever sphere of life they may move to periodically look into those affairs which most intimately concern them, with the object of determining as accurately as possible their present position and future prospects. Similarly it is desirable to examine, as well as circumstances permit, those matters with which they are identified in the way of trade, or interested in as a pursuit that affords them wholesome health-giving exercise, from which they hope to derive pleasure and satisfaction. This custom is a safe and excellent one, and the natural time for carrying it out is towards the close of the year; this seasonable work accomplished, and not till then, can they properly report progress.

In reporting progress in the great industry of horticulture there is a tendency to take a view too limited for properly comprehending the subject. A year is but a short time for measuring the stages of advancement of that of which Nature is the author and man only the guide. Yet much may be done in a year, and that much has been done in that short period we have good evidence; but in order to understand the full import of the general progress that has been effected we must take a further backward glance: Let the old look back to the period of their middle age, and the middle-aged look back to the days of their early manhood, and carefully estimate the condition of gardening then with the appliances at the time, and then look at the position of the craft now. They will have seen changes occur—something advancing and something receding in accordance with natural laws or the fleeting fashion of the hour; but these are mere incidents in the life of that which is essentially diversified, yet which is gaining vigour with the lapse of years.

The decline of horticulture has been whispered by the timid. With as much reason they might bemoan the decline of civilisation or the decline of man. Not in this our day is there any substantial evidence of the decline of one or the other; the three are co-existent and progressing. In science, art, and industry real progress must be reported, and can this be so while that which is a combination of those great elements is receding? It is impossible. With a great and continuous "levelling upwards" in education, higher intellectual tastes and refined perceptions must be promoted; and under these circumstances there can be no permanent decline in horticulture, but progress must continue, and there is every probability that it will be greater in the future than it has been in the past. Granted that "bad times" is not an empty phrase, there have been times far worse; that "low rents" exist—there

have been lower; that "depressed trade" is not a vision—there has been far greater depression. These checks and changes are but little clouds in the nation's life, which through all history have been periodically recorded, and, like comets, come and go, no one knows why nor whence, nor exactly what is their mission. So sure as the human frame has its ailments, so sure will there be recurring impediments to the smooth progress of that aggregation of individuals of which nations are made. These obstacles may be, and must be, to some calamitous; and, on the other hand, they may be, as they have been, "blessings in disguise" as affecting the whole community. But admitting to the full all impediments, progress in horticulture must still be reported, and that of a remarkable kind. Evidence of this we were about to adduce when the following letter came to hand from one of the most experienced, successful, and enlightened of British gardeners. Referring to the somewhat discouraging views that have been enunciated as to the past, present, and future of gardening, our correspondent observes:—

There is, it is to be hoped, no necessity yet to sing dirges over the fortunes of our craft. Mutation to a great extent characterises all mundane affairs, and so do seasons of adversity; but such conditions should never cause despondency and gloomy forebodings to spring from the mind, for they may in the long run result in good to the cause we all have so much at heart.

Almost everything advances as do the tides—not by one continuous and uninterrupted flow of progress without surges that seem to bode nothing but retrogression, and gardening cannot possibly be shielded from similar influences.

Though I do not want hopefully to tell "a too flattering tale" of gardening, I think it has as yet kept step with the fortunes of old England, which have sometimes been chequered and uneven, but in spite of which progression of a very marked and substantial kind is the sum of its ups and downs.

Agricultural depression has recently put a drag on the wheels of her twin sister horticulture, and it may be in some instances "reversed the engine." But I am of the opinion that horticulture is not in such a bad way after all, and that "its streams are yet fresh, and its sunshine bright" when looked at from the standpoint of bygone experience.

Nearly half a century has passed since the writer took to "the spade" as a means of livelihood. Not a very long time to look back, but long enough to enable him to see at the far end of the vista a very different condition of gardening from what we have now. Many things have changed, and many have been discovered since then. Taking the case of what I shall term the operative gardener first. His position fifty years ago was very different to what it is now. I never had more than 9s. per week as a journeyman in Scotland, and 13s. without lodgings in England, and I had the fortune to be employed in some of the best gardens on both sides the Tweed. Under gardeners are much better paid now, and, I think, not so hardworked. Head gardeners' situations, which then yielded £45 and £50 per annum, have now risen to £70 and £80; and I know of several large places where the gardener's emolument was but little over £100, whereas now it is up to £200. So much, then, for the gardener.

As to gardening, it would take almost a volume to contrast its extent and condition half a century ago with the state and the dimensions it has now attained. Almost every old garden has widened and extended greatly; and though at present we see some retrogressive steps in the case of gardens owned by those who derive their revenue from land exclusively, that does not prove that horticulture as a whole is not making progress. What of the retired merchant class, and those who are still actively carrying on the wonderful commerce of the nation? Why, where there was one garden owned by this class fifty years since there are fifty now. Then the shopkeeper, not to speak of the merchant prince, was content to reside above his shop or store, and was innocent of a garden. Now in thousands of cases they have their villas in the suburbs or right out in the country, have their gardens and glass houses, and their gardener or gardeners as the case may be. So that, although in some of the more pretentious gardens of the nobles and gentry we witness what it is to be hoped is but a temporary retrogression, the horticultural wave is to be seen going forward at a far greater number of points than where it is receding. Of course, it is very undesirable that the gardens of

the great landocracy should show signs of any decay, but I am not certain whether the multiplication of the smaller gardens that has gone on so rapidly the last twenty years is not more desirable than the increase of the larger. It is at least a sign that the love for gardens and gardening is getting a deeper hold on the masses, and that, instead of its being confined to a few giant gardens, is developing into what may be termed the graceful twigs of the good old horticultural tree.

Market gardening, especially that branch of it which supplies choice fruits and flowers to the great centres of commerce and wealth, has of late years developed into wonderfully increased proportions, and these exotic commodities are now made use of to an extent never dreamed of in the memory of past generations. We need only go to Bexley Heath, the Tweed Vineyard, and similar establishments to see the immense factories that exist and have come into existence within the last ten or twelve years for turning out plants, Grapes, &c.; but we can also witness the vast multiplication of smaller concerns for the same purpose in various parts of the country. Nor can we fail to observe the marvellous extension and increasing richness of nurseries with the gigantic seed establishments that had no counterparts a generation ago, the tendency in these being to further extension rather than restriction—active life, not decay, being the manifest signs here.

If we take a glance at horticultural literature, progress there also is very apparent. The number of weekly papers almost exclusively devoted to horticulture has more than doubled, and their circulation more than quadrupled during the past generation, while their present character must also be regarded as improved. At all events the press is much more expensively conducted than formerly. It is not very long since a woodcut was a rarity in a gardening paper; now they teem every week with illustrations, though it may be doubted if they effect an amount of good in proportion to the expense they entail in production. But there is another branch of gardening literature that cannot be overlooked—the wonderful trade mediums that have come into existence during the past few years. Many of these are works of art, and are only produced at an expenditure of money, skill, and labour that is absolutely incompatible with a declining industry.

The character and capabilities of gardeners have been touched upon by correspondents. This is rather a difficult and invidious point to handle or illustrate by comparison. I do not believe in the progression of man individually. Solomon and his contemporaries were probably of as great intellectual grasp as any in these times, and there are not very many Homers, Platos, and Shakespeares now. Still civilisation has progressed, and so have the arts and sciences, and by what process of reasoning or comparison can we exclude the gardener from some share in the progress of that same civilisation? Probably the remuneration of gardeners has not advanced at the same rate as that of other classes, and so the tendency may be towards an inferior class only being enlisted in its ranks. As to character, from my own knowledge, conduct and behaviour in all ranks of gardeners were tolerated forty years since that certainly would not now be allowed. And it is generally admitted that the sphere of the gardener's care and anxiety has widened considerably, while many of the branches of the profession have improved, though perhaps some of them have been neglected. Gardeners of the past might be greatly puzzled to meet the requirements of families at the present day. Surely all the literature, the improved appliances, and the stimulus of competition has not been in vain, but must, as I think they have, result in the general improvement and spread of horticulture.

It might perhaps be difficult at this time of day to be the pioneer of any marked improvement in cultural matters. There are so many ardent workers in, and lovers of, gardening that surely the time has not yet come for writing *retrogression* on its path. No! unless the country recedes from its present position of wealth and greatness it would be rash to prophesy evil things of gardening.

I am of opinion that any marked improvement in practice must now arise, and be stimulated by widening the basis of what may be termed the science of the garden, such as its chemistry and physiology, and the horticultural press would do well to whistle for this wind to speed on the good old craft of horticulture. —DUM SPIRO SPERO.

Those are not the hastily written words of a youthful enthusiast, but are the well-considered expressions of one who has grown grey in advancing the work in which we are all interested, and which well and widely practised is fraught with benefit to all classes of the community. In what has been done in the past we rejoice in having had some share; and as to the future, with a widening field and ever-accumulating materials, we more than rest in the hope indicated in

the three closing words of our correspondent's letter, and look forward with confidence to the coming year. May it be prosperous to all.

DUKE OF BUCCLEUCH GRAPE.

I HAVE watched with considerable interest the controversy that has recently taken place both in the Journal and its contemporaries respecting the Duke of Buccleuch Grape. Some of the articles devoted to this subject have savoured too much of a passage at arms with quills, but what growers and intending planters really require is a thorough exposition of facts and practice which may enable them to form a correct estimate of the Vine under notice. Mere word-twisting and pulling to pieces of sentences that a writer might have used in perfect good faith will not give us the required information. Having had a fair share of success in growing and fruiting the Duke I venture to state my experience.

Some seven years ago I purchased the Duke with a number of other varieties for planting a new vinery, the price of the cane being half a guinea. The whole consignment was much knocked about in transit, but none received any permanent injury except the unfortunate Duke, which (and a fine cane it was) broke off close to the pot. However, I planted it along with the others, spreading the roots carefully. It made a vigorous growth during the following summer, even outstripping some of its companions which had been cut back in the orthodox plan to the first wire.

The second season I allowed four bunches on the Vine. The set was all that could be desired. The berries swelled to a great size, but became slightly spotted. It at once established itself as a favourite at dessert both from its noble appearance and brisk sweet flavour: the skin also is so thin it may be eaten with the fruit. This induced me to place a graft on a Muscat of Alexandria in the same house, which I had planted as a stock for any variety that might be specially approved of: but further of this graft anon.

The winter pruning consisted of cutting to spurs in the usual way and leaving about 5 feet of leading cane. Eight bunches showed, and—mark that—all on the leading cane, not one on the spurs. The set this year was not quite so good as the previous season, more stoneless berries having to be left at the thinning than I liked to see. This was also the case with some Muscats in an adjoining vinery planted at the same time.

The soil of the border—fibreless light black material, to which had been added about three cartloads of clay—had been dug from off the lime and ironstone; hence a sufficiency of the first-named mineral was considered certain, but the indifferent stoning of the berries gave me to understand that I was wrong in my calculation. I therefore applied half a chaldron of lime fresh from the furnace to a border 70 feet long by 14 wide. The lime was first of all placed in small heaps all over the border, then covered with the surrounding soil to the depth of a foot. Water was then poured on the soil; this was done to prevent any of the valuable properties of the lime escaping. The heaps were then spread over the border and forked in, so as not to injure any of the roots close to the surface. This application had the desired effect, for since that not a stoneless berry has been seen in our bunches. It sets as freely as its neighbour Foster's White. The spot also disappeared the following season. This latter malady I attribute to an excess of humus in the soil.

The barren aspect of the side branches consequent upon spur-pruning induced me the following winter to use my knife less freely. Several of the best side growths were left a foot to 18 inches in length; the others were cut-in to spurs just to watch their behaviour for another year. Result: Spurs barren, extension wood, a capital show of fruit. I had thus the Grapes evenly distributed all over the Vine.

Ever since I have experienced no difficulty in getting a good crop of Grapes every year with perfect setting and no spotting. The Grape, as most readers are aware, has a noble appearance: bunches 8 to 12 inches in length with proportionate width; berries $3\frac{1}{4}$ to 4 inches in circumference.

Respecting the graft on the Muscat of Alexandria, I have only to say that the bunches and berries are even finer than on its own roots, and the flavour is also slightly improved; the growth is more vigorous, with less pith and more prominent eyes. High feeding is in my opinion detrimental to its well doing, and as our borders are considerably above the surrounding ground level the roots have the full benefit of the sun. My Dukes are growing in a house planted chiefly with Black Hamburgs. They take about ten days longer to ripen, and I have up to this season succeeded in keeping the Grapes perfect as late as desired, but during the past summer many berries decayed before half the crop was cut.

This might have been caused by the crowded state of the berries, which had swelled more fully than hitherto, and owing to the thin nature of the skin splitting would ensue, and decay in consequence. The scissors will have to be used more freely in future, and a dry buoyant atmosphere maintained.

To sum up. I consider the Duke the finest white Grape in cultivation except the Museat of Alexandria, and, giving it ordinary Black Hamburg treatment and long spur-pruning, it cannot fail to please the most fastidious. What a grand sight a whole house of it must be at Clovenfords! while a Belgian gentleman who called here this summer on his return from Mr. Thomson's, exclaimed on seeing ours, "*Bon! Bon! Magnifique!*"

The respective merits of Foster's White and Buckland Sweetwater Grapes have also lately been discussed. Now! do not think it is fair to either Grape to judge them from only one point of view; for while Buckland Sweetwater is essentially an early Grape, fit to eat as soon as coloured, and even before that, Foster's White is practically of no use for dessert until weeks afterwards; in fact not until it has assumed that deep golden hue so much prized in Muscats, and that can only be obtained by long hanging and partial exposure to the sun. Hence if white Grapes are desired as early in the season as possible Buckland Sweetwater is the better of the two, with Foster's to follow; but both must make deep obeisance to the noble Duke.—A. WIPF, *Eastcliffe Gardens, Lincoln.*

ONCIDIUMS.

TROPICAL America is the home of the great family of *Oncidium*s; but though many of the two hundred or more species are found in tropical latitudes, yet some of them ascend to such great heights in the mountains that numbers of the most handsome can be safely included amongst what are termed cool-house Orchids. Still the greater proportion of them require warm treatment, similar to that afforded the East Indian species. Of those which are found at the greatest elevations, perhaps *O. Warscewiczii* is the most remarkable, as it has been observed growing upon Oaks on the mountains of Costa Rica 8000 to 10,000 feet above sea level, and there the temperature in the coolest season falls to 40° or even below it.

The *Oncidium*s are of epiphytal habit, and they are chiefly treated as such under cultivation; but there are some, especially the strongest, which succeed very well under culture in pots, and there are few which cannot be grown in baskets. As, however, the treatment required by these plants is so extremely varied, the



Fig. 99.—*Oncidium tigrinum*.

particular character of each species noted will be referred to under their respective names. One peculiarity of the genus is the enormous length the inflorescence attains in certain species, 10, 12, and even 15 feet being reached by *O. unguiculatum* and others. Yellow, too, is the most prominent colour, and the shades of this from the most delicate lemon to the deepest orange are very numerous. In a few purple hues are found, and perhaps one of the best known of these is the spotted *O. cucullatum*, the flowers of which contrast most strikingly with such types as *O. concolor* or *O. tigrinum*.

In the following notes the best and most useful species only are selected, as many of those known and some of those that have been introduced are comparatively worthless in a horticultural point of view, though interesting botanically.

Oncidium tigrinum.—The two species shown in fig. 99 and fig. 100 represent two distinct types, the large and the small-lipped



Fig. 100.—*Oncidium zebrinum*.

forms. Decidedly the most showy of these is the former, which is entitled to rank amongst the best of the whole genus. There are several varieties of this species, but that shown in the engraving—viz., *O. tigrinum* var. *splendidum*, is by far the finest. The lip is the most prominent portion of the flower, of a very bright clear yellow colour, the sepals and petals having a similar ground colour heavily barred with rich chocolate brown. It is said to have been found both in Mexico and Guatemala, and I believe first flowered in this country in Lord Londesborough's collection about twelve years ago. It produces a handsome branched raceme 2 feet or more in length, the flowers being 3 to 4 inches in diameter, and the lip often 2 inches broad. They are produced early in spring, and last for a month or more in good condition. A pot or a basket suits both the variety and the species very well, the temperature of the Cattleya house being most likely to insure its success. The typical *O. tigrinum*, which is also grown under the name of *O. Barkeri*, has been much longer in cultivation, having been introduced about 1840.

Oncidium zebrinum.—A charming species, but much rarer in cultivation than it should be. As already noted this is an example of the small-lipped *Oncidium*s, and it is curious that there should be similar characters in the genus *Odontoglossum*; for instance, *Odontoglossum vexillarium*, *O. Phalaenopsis*, and *O. Roezlii* may be taken as species of the large-lipped section, while *O. cirrhosum*, *O. Halli*, *O. gloriosum*, and others come under the small-lipped type. The flowers of *Oncidium zebrinum*, as shown in fig. 100, are of moderate size, the sepals and petals white barred transversely with rich reddish purple, and are borne in a panicle that occasionally reaches, or even exceeds, 10 feet in length. Plants appear to have been introduced by several different persons, but the first to flower I believe was one in Mr. W. Bull's collection in 1872. It is a native of Venezuela, and succeeds best in a warm house.—L. CASTLE.

(To be continued.)

HELIOTROPE WHITE LADY.—This is an excellent variety, which will doubtless, when well known, be accorded a place in every garden

where fragrant flowers are in demand during winter. It certainly has not pure white flowers, and when allowed to develop naturally without the aid of heat they are heavily shaded. In a temperature of 50° during winter they are slightly shaded, but when grown in a house 10° warmer the flowers are nearly white. However, it is a beautiful light-flowered variety, and far superior to any other I am acquainted with for producing flowers in winter. It is a strong and robust grower, and every shoot, however small, will produce a large truss of flowers. This variety possesses one decided advantage over any other Heliotrope, and that is, it does not grow weakly during winter while in a temperature of 50° to 55°. If it can be kept in the temperature named it will continue growing and flowering the whole of the winter. Its compact habit admirably fits it for purposes of decoration. But I think it is even more beautiful when cuttings are inserted moderately early in the season, and grown on into small standards. Plants with about 18 inches of clear stem and then trained on small umbrella-shaped trellises, and freely pinched during the summer, will be found very attractive while in bloom during the winter in warm greenhouses or conservatories. Grown as small standards this plant forms an excellent companion to the varieties of tree Mignonette.—LANCASTRIAN.

PEAR PITMASTON DUCHESS.

I THINK we may prophesy that this Pear will soon become one of the most popular of all the varieties. In size and beauty it has no rival, and though its quality of flesh is not equal to a Marie Louise or a Doyenné du Comice, it runs those two fine varieties very closely, a little more sugar only being wanted to place it on a par with those two first-class kinds. We have it growing both on walls and standards, and also worked on the Quince and Pear stock. As grown on the Quince and trained to a west wall the sight when the crop is hanging is one to be remembered. On this stock the fruit is never so abundant, but the increased size and clearness of skin are remarkable in comparison with those grown on the Pear stock. On this latter stock fruit is produced more abundantly; but even if thinned to the extent of those on the Quince the size is much inferior, but there is no perceptible difference in quality of flesh. I have noted precisely the same variations with trees trained as standards and pyramids, of course the fruit being smaller on both stocks than from trees on the walls, though even in those positions it is rare that a fruit is of a less weight than 12 ozs., and from walls that weight is frequently doubled. We had dozens of fruits this year weighing from 22 to 28 ozs. The only fault it has is that when once it begins to ripen it is quickly over, a fortnight being the extreme length of time that it continues in good condition; but to some extent its season for use may be lengthened by gathering the fruit at intervals of a week or a fortnight—say a third of the crop about the middle of September, and the other at two different times between then and the end of the first week in October. Its hardiness, fruitfulness, and beauty are qualities that will eventually tend to its classification as the market Pear *par excellence*.—W. WILDSMITH, Heckfield.

CHRYSANTHEMUMS.

WHEN I read the remarks of that excellent florist, "D., Deal," at page 518 on the Chrysanthemum I could not help feeling the importance of anyone, however well versed he may be in a flower, following closely from season to season the improvements or otherwise which it attains. Your correspondent has evidently missed much by his non-attendance at Chrysanthemum exhibitions, for no flower, not even the Rose, has made such rapid advance and has become so generally grown as the Chrysanthemum. It cannot be called, like the Rose, a "clerical" flower, but it may truly be called a "gardener's" flower; and while it requires attention over a longer period than the Rose, it can be grown and flowered by everyone who has a glass house to protect its expanding blooms. The season of the year when it is in perfection also makes it doubly valuable, and I am safe in asserting that in large gardens where Chrysanthemums were little cared for a few years ago they are now grown in large quantities for home decoration and affording a supply of flowers. The Temple Garden was the only public place in London at one time; now all our public gardens grow them by thousands.

Dressing.—I must differ from your correspondent on this point, for the Chrysanthemum is not dressed so much as was formerly the case; the blooms are grown larger and of greater substance and solidity than formerly, and therefore naturally require less dressing. A great characteristic of the recent Kingston Exhibition, in which there were upwards of 1600 blooms staged, was the noticeable fact that very few boxes contained highly dressed blooms; in fact, a well-known prizetaker and expert dresser—viz., Mr. Rowe, formerly of Rochampton and now of North-

ampton, remarked that there was scarcely a bloom that could be said to be dressed; and I know it to be a fact that not one in ten that grow the Chrysanthemum can dress it. Some flowers it is almost impossible to improve; for instance, the six Princess of Wales exhibited by Mr. Molyneux at Kingston were simply perfection, and I should say that no art could have improved them. The trio of Rundle varieties, generally speaking, grow so perfect in form that they cannot be improved. Barbara, Prince Alfred, and others are generally of good form. The cup certainly may contract the florets towards the centre, but that cannot be said to be dressing.

There has certainly not been many novelties added to the list of incurved varieties for several years, except sports of these, which are in some cases acquisitions. The sport of Prince Alfred, and named Lord Wolseley, now in the hands of Messrs. Cannell and Sons for distribution, will be a very welcome addition. Then last year there was a very pretty golden amber sport of Eve, named Mabel Ward. In this way we obtain a few more improved varieties, but of new seedling incurved varieties we have none. I should think that the suggestion made in your last issue for a tabulated return of the varieties is a good one, and may be of even more service amongst the more rapidly increasing varieties, the Japanese.

Pompons.—I cannot too strongly endorse the opinion of "D., Deal," that these ought to be shown after the manner of the Pompon Dahlias at the Crystal Palace last autumn. When exhibited in bunches as grown without disbudding they are far more effective than are one, two, or three flowers too often laid flat upon the boards. Imagine the difference it makes in the effect of an exhibition, or even to the stand itself, if a bunch of three trusses is cut from 6 to 9 inches long bristling in flower buds from top to bottom, against three flowers resting flat upon the board.

Japanese.—The varieties of these have become so numerous that it is difficult to remember them all. A few magnificent varieties have been introduced during the last few years. In 1881 Messrs. Veitch & Sons contributed some extraordinary flowers, and I may mention Comte de Germany, Bend Or, Thunberg, and Kämpferi. Messrs. Jackson & Son are also large introducers, and to them may be given the credit of sending out many of the best varieties we now possess. Of these latest introductions I shall have more to say hereafter. Messrs. Dixon & Son are also large introducers.

The question has been raised whether King of the Crimsons is a Japanese variety. It cannot possibly be placed amongst the latter unless we include Cloth of Gold, Chevalier Domage, and even Julie Lagravère in the same section. To Mr. Molyneux must be given the credit of again bringing this old variety to public notice. The first year he exhibited it at the Southampton Exhibition in 1880 I was particularly struck with its beauty, and I consider it regrettable that the reflexed varieties are not sufficiently encouraged. All exhibitions should include a class for them.

Mr. Molyneux, I believe, had the majority of his stock of cuttings in the first instance from Liverpool, and in that neighbourhood King of the Crimsons had been known for many years. Triomphe du Nord is a very different flower: its florets are flat, and the whole flower has the character of a pure Japanese after the manner of Fulgore, only with broad instead of quilled florets.—J. W. MOORMAN.

NOTES ON PINE-GROWING.

SINCE the importing of Pines from St. Michael's assumed such dimensions many growers of Pines for market have given up the trade, and even many gardeners have in a great measure abandoned their cultivation; their employers being satisfied with the St. Michael's fruit, which can be had very cheap and looks remarkably well. To a real lover of a good Pine, however, the foreign fruits can never equal the home-grown fruits for flavour, and this has caused some who ceased the cultivation of Pines to begin again. These cases are not numerous yet, but still they show that the home cultivation may again become general.

Overpotting and overwatering are two evils that require to be guarded against in the cultivation of Pines. These two evils have been the means of many failing to produce Pines of first-rate flavour, and have in some instances ruined plants that otherwise would have been splendid. Good fibry loam, bone dust, charcoal, and a little soot make a good compound for fruiting plants in, watering—when watering is really required—with weak liquid manure. Ten and 11-inch pots are large enough; fruit 8 lbs. weight can be produced in these sizes of pots, which weight is heavy enough for anything; indeed, smaller fruits are more useful. This is one objection to Mr. Hunter's grand seedling, it throws such large fruit. Its extremely upright and very tall leaves make it rather awkward in a house. Anyone who has the

Queen, Smooth Cayenne, Charlotte Rothschild, and Black Prince is possessed of varieties that have every good quality.

The objection that used to be urged against Pine-growing, "that they took so long to produce a fruit," does not hold now-a-days, when we can produce them in the year from the time the sucker is potted on. The old system of growing the plants for two or three years has long been exploded.

Pine-growing, strangely enough, has been always considered a remarkably difficult part of a gardener's duties, but this is a great mistake. If a few simple rules that experience has shown to be right be adhered to, the cultivation of Pines is child's play compared to the growth of hardwooded plants or the management of a kitchen garden as it should be managed. Gentlemen who desire to have the fruit in its perfection must have them grown at home, and gardeners who are thus called upon need not tremble at the mention of Pine-growing, as I have seen some do, who

considered that there were some mysterious secrets connected with the cultivation of this noble fruit.—J.

MR. G. F. WILSON'S GARDENS.

Few names are more prominent in the horticultural world than that of Mr. G. F. Wilson, and his gardens are famed for the great collections of hardy, herbaceous, alpine, and bulbous plants that are grouped in a free and informal manner, which to many is so enjoyable. The annexed engraving from a photograph represents a portion of one of Mr. Wilson's gardens, which is being admired by the owner, his son, and Mr. Harry Stevens of the celebrated firm of horticultural auctioneers. The friends of these gentlemen will have no difficulty in recognising them, but for the information of others it may be stated that Mr. Wilson is the central figure in the view submitted. As the gardens in question were fully described in our



Fig. 101.—MR. G. F. WILSON'S GARDEN.

columns so recently as June 3rd, 1880, it is not necessary to enlarge on them here, as readers who are interested in the details will find them in the number quoted.

SELECT VEGETABLES.

THE selection of vegetables to be grown during the approaching year should no longer be delayed, and with the object of giving assistance at the present time in this important work these notes are written. Some of the varieties recommended for general culture in the following notes are new and others old, but individually or collectively they are capable of giving the greatest satisfaction.

Asparagus.—This is undoubtedly one of the choicest and most useful vegetables, and too much attention cannot be given to secure the best variety, as, unlike many other vegetables, when seed of an inferior sort is sown it cannot be changed again for a better the following season; but it may be three or four years after sowing before the mistake is discovered, and as long again before bearing plants of a superior variety can be raised. The Giant or Battersea is the smallest of our English varieties, one of the oldest and least worth growing. Reading Giant is a large superior sort which can be recommended. Next to this comes Connover's Colossal, which is also a sterling variety. The Purple

Argenteuil, so much grown in France, has been recommended by Mr. Laxton for cultivation in this country.

Artichokes.—Of the two distinct kinds of Artichokes, the Globe and the Jerusalem, the first is not a general favourite or a profitable crop to grow, but the other is a first-class vegetable deserving extensive cultivation. In Globes the green one is very much better than the one which produces purple heads. At first the green one does not bear so freely as the other, but when established it succeeds far better. There is only one variety of Jerusalem Artichoke, which produces the largest, most numerous, and best tubers when the plants are 2 feet or so apart.

Beans.—Amongst the hosts of dwarf French varieties Osborn's Forcing and Canadian Wonder are still the best. They are now generally regarded as standard varieties. Osborn's is the better of the two for forcing, and Canadian for the open air. In Runner varieties Sutton's Giant White and Carter's Champion are alike good: in fact there is no difference visible in them when growing, but the seeds are not the same colour. Mont d'Or is the name of what is termed the Butter Bean. It is a runner, and produces long narrow pods of a cream colour. It takes its name from the flavour it is said to possess, but although we have had it cooked in a variety of ways we never found the butter very prominent in texture or flavour.

Broad Beans.—These are equally as popular as the preceding.

Webbs' New Kinver Mammoth is the best Broad Bean we possess. Its habit is most prolific, pods enormous and flavour perfect. As a show Bean it is unique. Carter's Leviathan gave great promise, as its pods were very large, but they were not produced freely enough; but Seville Longpod is fully established in this class, and as a very early sort Beck's Green Gem deserves to be grown. The Windsor varieties are prolific, but the pods are too short to give satisfaction.

Beetroot.—Size of root should not be the first or only consideration here; but compactness and good colour are the points to secure, and having regard to quality alone Dell's Crimson is the best. The Egyptian Turnip-rooted is the best for early use or shallow soils. The Seakale variety is a good vegetable in the hands of those who know how to cook it.

Borecole or Kale.—This is an excellent winter vegetable, as no frost or severe weather will injure it in the south—in fact this improves the flavour; and of kinds there is no better than the Cottagers', Scotch, and Curled. Ragged Jack is the hardiest of all with me. The variegated-leaved Kale is most valuable for supplying leaves in winter for garnishing.

Broccoli.—These are of much importance, and the selection must be made with care, as of all vegetables none is more erratic than Broccoli. There are some, said to be autumn sorts, which do not head until far on in winter, and winter varieties so called are often of no use until spring. These results are sometimes brought about by the weather, but variety has much to do with it. Some years' experience and observation are required to secure the right sorts, and these we give below under three headings. Autumn: Veitch's Self-protecting. Winter: Osborn's Winter White, Backhouse's Protecting, Cooling's Matchless, and Leamington. Spring: Lauder's Late and Suttons' Queen. Veitch's heads from November to January, the others following; and Leamington does not come in until well into spring, when it is replaced by the two last-named, which are superb Broccolis. Suttons' Queen is a variety we would never be without.—A KITCHEN GARDENER.

(To be continued.)

RELATIVE VALUE OF STRAWBERRIES.

In a recent number of the Journal a correspondent, replying to someone who inquired which is the best Strawberry, states that, taking all things into consideration, he would grow Keens' Seedling in preference to any other one variety. This, no doubt, he finds best for his soil; but as showing how much Strawberries may be influenced by the soil they are grown in, I wish to state my experience in growing them on a poor heavy soil near Maidstone. On this soil Keens' Seedling grew vigorously, but fruited very poorly, while Vicomtesse Hericart de Thury or Garihaldi grew well and fruited very much more abundantly than Keens' Seedling or the other varieties I grew. Perhaps the following list may be of use to some of your readers situated on a similar soil, as the results were very carefully arrived at, and each of the fruits that were picked was weighed, and also the value of them noted according to their size, &c.

AVERAGE WEIGHT PRODUCED BY ONE PLANT.

	First year.	Second year.	Third Year.	Total.
1. Vicomtesse Hericart de Thury	Onnce. 1½	Onnce. 6	Onnce. 8½	Onnce. 15½
2. Premier	1	1½	2	4½
3. President	0¾	1	2	3¾
4. Roden's Early Prolific	1	0¾	1¾	3½
5. Black Prince.....	0¼	1½	Not grown.	—
6. Keens' Seedling ...	0¼	0¾	2	3
7. Souvenir de Kieff...	0¼	0¾	Not grown.	—
8. Dr. Hogg	¾	1½	1¾	2¾
9. British Queen	¾	¾	Not grown.	—
10. Sir J. Paxton	0¼	None.	1¼	1½
11. Elton	0¼	None.	None.	0¼

The order according to the average money value of their produce is nearly the same, the value being reckoned at low market prices varying from 8d. to 2d. per pound, according to the size of their fruit and the time of its ripening; and again, the Vicomtesse is much before the others, showing that the berries were of good size compared with the others. Nos. 3 and 4 changed places, and likewise Nos. 7 and 8.

Elton will be seen to be decidedly the worst. The plants grew very large. They fruited the first year, probably only because their roots were shortened by transplanting. I think such sorts as Elton and Keen's Seedling would thrive on a light soil.

Here I have a different soil from that previously mentioned—a fertile medium loam, and not having been here long enough to

test the varieties myself, have to go by the experience of others, being indebted to Mr. J. Groom, late head gardener at Linton Park Gardens. This summer I planted twenty-four of the best varieties for comparison, and in time hope to state the result. I am planting 58,000 for market all of one variety—Sir J. Paxton. I would have planted a large proportion of the Vicomtesse, but could not obtain the plants in quantity, as it is now superseded by Sir J. Paxton on the soil—light, I believe—from which I am getting my runners. This shows which is considered the best variety in certain districts by those who earn their living by them. At the same time I do not suppose it has been tried against some of the newer and earlier varieties which have been grown in gardens.

All those of the above 58,000 we have as yet put in have been planted in a cut made by the spade, instead of a hole made by a dibber as has been recommended in the Journal for Cabbages and their tribe. We previously dipped them in liquid manure to sustain them until new rootlets were produced; and although we cannot plant them in such large quantities in the same manner as they could be planted in a garden, those planted in October and later have taken well, the large leaves not having died off, and new ones having made their appearance. In fact they seem as good, or better, than some varieties obtained from a nursery in July for my garden, planted in the same manner, but without the liquid manure, and which had to be watered afterwards on account of the dry weather. I have planted a few plants of twenty-four of the best varieties this summer, so I hope to be able to see for myself which I think best on this soil, and to state the results.—W. KRUSE.

BOUGAINVILLEA GLABRA.

THE above superb flowering plant is well worthy of a place in either large or small establishments. For growing in a pot as an exhibition plant, against a wall or up to the roof of either a stove or greenhouse, it has few equals. It is one of those accommodating plants that may be had in flower at almost any time of the year with those who know how to retard and forward it. When we take into consideration its accommodating character in every respect, the profusion of its somewhat uncommon-coloured flowers, their lasting properties and suitability for associating with other cut flowers, it is surprising that it is not more largely grown. It is of very easy cultivation; anyone who possesses a house with sufficient heating power to keep out frost may grow and flower it successfully.

It is not very particular about the soil it grows in. However, when grown in a pot it should have some good compost with an admixture of broken bones. When in a healthy growing state it should be liberally supplied with water, and when the pot is full of roots occasional supplies of weak liquid manure are very beneficial; as a stimulant I find diluted cow urine excellent. With those who have a stove temperature at command it may be kept growing and in flower almost continually. When, however, it is grown in a cool house it is deciduous and should be treated accordingly. Here, it is growing up the roof of such a house, and commences flowering about the middle of July, and continues doing so until October. In January it is pruned like a Vine on the short-spur system, and the growths untied and rearranged on the trellis again about 18 inches apart. It is not very troublesome as regards insects; green fly appears to be the only one to trouble it, and this can be easily kept down by fumigating with tobacco paper occasionally.—J. RICHARDSON, *Calverton Hall*.

SPRING v. AUTUMN MANURING.

It is an important question to cultivators whether manure for spring crops is best applied in autumn, winter, or spring, and as there appears to be much haphazard work in these applications a discussion of the matter may prove serviceable. For Potatoes especially it is often recommended to apply the manure in autumn, so that it may not be too fresh and rank at the time the sets are planted; and, again, it is frequently recommended to wheel manure on any ground which requires it during frosty weather, so that the ground itself may not be injured by trampling on it. Now in the matter of Potatoes I have no doubt it is a bad plan to place large quantities of rank manure close to the sets. Especially is this the case with some varieties which do not make a great amount of haulm. The old Ashleaf, for instance—(or, as I am told it ought to be called, the old Walnut-leaf, and certainly its leaf is more like that of the Walnut than the Ash, it being roundish at its extremity instead of pointed, as is the case with Rivers', Veitch's, and Myatt's Ashleaf)—becomes black and hollow in the middle if the soil in which it grows is a little too strong.

On the other hand, the Scotch Champion on my soil appears capable of taking up as much manure as a crop of Cabbages, and is invariably of the best possible quality, appearances in an uncooked state alone excepted, although I frequently see it black or hollow in the centre and spotted throughout when grown on light soils. Let me parenthetically advise anyone who has a piece of ground too heavy to grow other varieties of Potatoes to try Champions there, planting them at least 30 by 15 inches apart, and he may perhaps secure a heavy crop of good Potatoes and improve his land at the same time. Couch grass and other troublesome weeds are no drawback to this. If the soil is well pulverised and the Potatoes get a fair start they will take care the weeds are no more trouble. It is a capital cleansing crop for bringing neglected corners into cultivation.

It is remarkable this season that in this neighbourhood all the testimony I receive is in favour of the quality of the Champion as compared with other varieties, and many people regret they did not plant more of it. Now, although I shall continue to grow Champions for my main crop, having proved their suitability to my soil and to the palates of my employers, I do not advise them to be grown largely on light soils, as I attribute it entirely to the cold wet season we have had that their quality from light soils now is superior to that of other varieties. The same results were obtained after the still colder and wetter summer of 1879. It is to be hoped we shall not always have summers which are cold and wet, and when good seasons do come the Champion on soils which are dry or poor will not be of good quality.

But to the manure question. Is it not possible to apply it in spring in such a condition and in such a manner that it may not be too rank? I should say that when a manure is too rank for a given crop it is either because it has been applied in too large a quantity, or that its particles have not been sufficiently divided. A piece of rank manure as large as a man's fist is too large to place against a Potato set, and does more harm than good, but if powdered and distributed through a cubic foot of soil it might prove beneficial. I will return to this part of the subject further on; but first let me suggest some of the disadvantages likely to follow an autumn or winter application.

In the case of light soils much of the ammonia is lost during winter; and if this is the case, as there is seldom any difficulty about the cultivation of this class of soils in spring, it is certainly more economical to defer the application. In heavy soils perhaps there is not much loss of ammonia, but the addition of manure to them certainly makes them more retentive of water and a better harbour for slugs and worms, the cultivation being consequently delayed, and the crops run greater risks of damage. The plan of wheeling manure on the ground and leaving it in heaps is greatly to be condemned in a garden, as it makes it patchy and prevents a regular-looking crop being grown for years; while the other plan of spreading the manure over the surface and leaving it there must allow some of its valuable constituents to evaporate, and if the ground is heavy it will have the effect of keeping it wet, preventing aëration and the action of frost.

Winter-digging on heavy ground is also a great mistake, but I cannot enter into that part of the subject now; and the next question is, If the manure is not to be applied in autumn or winter, how can it be most economically preserved and applied? This I will leave for another paper.—WM. TAYLOR.

[P.S.—Mr. Taylor sends the following supplementary note, written after receiving the Journal last week:—"Please state that my paper on manuring was in your hands before that from 'SINGLE-HANDED' appeared. I am delighted to see 'SINGLE-HANDED' coming out strongly again, and hope he is in a fair way for complete recovery. His article so well expresses the views I hold that I had to look at it twice before I could be sure I had not written it myself."]

LAWNS IN WINTER.

A GOOD lawn is attractive at all seasons, but more especially in winter, as then the surroundings are seldom so cheerful or attractive as in summer. Many parts which might be passed unnoticed then become conspicuous now, and good order should be the leading feature. It is now too late to try to improve the grass on lawns, and all that can be done is to keep them in as fine condition as they were in summer.

To sweep or walk much on grass when it is very wet will soon disfigure it. Some think they can clean the grass when the weather is too wet for working in the kitchen garden, but those who follow this plan will never have enjoyable lawns in winter, as much sweeping under those conditions destroys the close-grown velvety texture of the turf, and gives it a muddy unsightly appearance which it will retain until fresh growth commences

next spring. My advice in wet weather is, "Keep off the grass." When the surface is dry sweeping can be done quickly and effectively; then if the roller is run over the grass, the lawns in winter will be almost as beautiful and enjoyable as they were when at their best in summer.—J. MUIR.



RELATIVE to LABURNUMS AND CATTLE Mr. James Stott, nursery and seedsman, Alnwick, writes:—"I have had a field over twenty years with a row of Laburnum trees in it, which seed abundantly. Cows, horses, goats, and sheep are pastured in it, and have free access to the trees for shade. I have never seen any of the cattle eat them. The seed generally hangs on the trees till the young leaves appear."

— MR. W. WELLS, Redhill, Surrey, sends us flowers of two good late WHITE CHRYSANTHEMUMS, which he finds valuable at this time of year. One is named Miss Marchaux, an incurved bloom of moderate size but good substance, and pure white. The other is unnamed—an open bloom of a semi-reflexed character, full, neat, and of a clear pure white, very free, and extremely useful for cutting.

— RELATIVE to the COLOURS OF FLOWERS, "C. M." writes:—"I was much astonished to read in the *Journal of Horticulture* a statement of De Candolle's that 'blue and yellow being the two primitive colours of flowers, and always exclusive of each other, no blue flower ever changes to yellow, nor yellow to blue'—(*Journ. of Hort.*, p. 315, April 20th, 1882). What does the author of the article think about the Pansy (*Viola tricolor*), where you will find varieties of bright blue and bright yellow colours? Of *Hyacinthus orientalis* we see the same phenomenon. We very often find both colours in the same flower—for instance, *Torenia Fournieri*, some varieties of *Iris*, and in several varieties of Pansies, &c."

— RELATIVE to FRUITS and LOCALITIES an experienced gardener observes, and many will agree with him:—"I do wish writers in the Journal would at least name the county they write from when recommending fruits. Varieties of Apples and Pears which may be good with the writer, but perhaps not even be suitable if grown in another county. Something more is wanted than the bare recommendation. The time a variety blossoms is in my opinion of the greatest importance, and this information would give readers of this paper an idea if the same variety would be suitable for the locality in which they reside. If those who give us the benefit of their practice would give the information suggested and state the character of the soil their remarks would be of greater practical value."

— MR. C. PRINCEP of Walsall writes as follows on SILICA AND IRON FOR VINES:—"The correspondence having reference to the Vines at Knowsley Hall is of importance to all those connected with Grape-growing. I should be glad to know more of their history, border formation, and how supplied, beyond the information already given. Acting upon this, a portion of a vigorous and well-matured cane was dropped into the crucible, and the ash obtained (a portion of which I now forward), which in its fibrous state afforded unmistakeable proof of the presence of iron. I think 'VITIS' has lost sight of that which is most important, the needful for their successful culture—viz., both silica and iron."

— "WHERE choice white flowers are in demand during the winter," writes a correspondent, "*JASMINUM GRACILLIMUM* will be found an invaluable acquisition. It is now to be bought at a comparatively cheap rate, and should, and indeed is, rapidly

becoming popular. It requires less heat than Gardenias, grows freely, and produces trusses of beautiful pure white and highly scented flowers at the points of the gracefully drooping branches, and each vigorous branch will produce more bloom at nearly every leaf-axil. I find cuttings strike slowly but surely in an ordinary moderately heated close propagating frame, and the stock will be increased as rapidly as possible."

— MR. F. W. BURBIDGE writes—"I am glad you propose an ELECTION OF CHRYSANTHEMUMS, in which I shall be pleased to join. The truth is, as in Roses, we have far too many kinds too nearly alike. Will anyone say why we so seldom see old Crimson Velvet now-a-days, or if the new King of Crimson is its new form? Sœur Melanie I call a small Elaine; its white is pure. White Trevenna is not so white, shows a yellow eye, and is otherwise inferior. I had this year a seedling perfectly single, like a single Pyrethrum, and am very proud of it. Some day a single-flowered race will be valued. Of all reflexed vars. Progne is here the favourite, rich violet-purple, scented like Violets and Mignonette mixed. Ethel is fine now after Elaine, but its white is not so pure. In reflexed flowers the bright face of the florets is shown, and so they will always lead in colour. Incurved flowers show the backs of the florets only, and so are paler."

— THE following notes upon the LONDON NURSERIES AT CHRISTMAS briefly indicate the chief features at the dull season of the year, and prove the value of Orchids for winter decoration, as in most of them these are by far the most notable amongst flowering plants. The great demands upon our space this week will not admit more than the briefest reference to them, and we must reserve detailed reports until another issue.

— IN Mr. B. S. Williams' rich collection of ORCHIDS AT UPPER HOLLOWAY, notwithstanding the recent fogs which prove so injurious to the plants, there is now a display of great interest and beauty for December, and the condition of the plants with the buds showing gives abundant promise of a still finer effect in a few weeks' time. Odontoglossums as usual at this time of year are well to the fore, some superb varieties of *O. Alexandræ* being very notable; some are pure white, and others heavily spotted and blotched, while all the best flowers are distinguished by their good form. *O. Pescatorei* and *O. gloriosum* are also good; *O. Halli*, *O. hebraicum*, and many others showing numbers of spikes. Cypripediums are attractive; the useful *C. insignis* being represented by several magnificent specimens. The varieties *Maulei*, *Chantinii*, and *punctatum violaceum* are flowering well, and a good opportunity is afforded for comparing them with each other. The two latter are precisely alike, and distinguished from *Maulei* by their darker lips and petals, and their much broader leaves—two well-marked characters. The lovely crimson-hued Cypripedium *Warneri* is in good condition and deserves a place amongst the best of the genus. *C. Roezli*, *C. Roezli alba*, *C. Harrisianum*, *C. villosum*, *C. Boxalli*, *C. Sedeni*, and many other well-known favourites contribute considerably to the beauty of the collection. *Lælia anceps* with its beautiful variety *Dawsoni*, *Lycaste Skinneri*, and *Maxillaria grandiflora* are flowering well, and the grand Cattleyas are showing abundance of sheaths.

— ONE other Orchid in the same nursery is particularly noteworthy—namely, *Cœlogyne barbata*, as it has been considered by some difficult to flower, though this does not appear to be the case at Holloway. Several plants there have three to five spikes of flowers each, and if the brownish lip is a disadvantage the plant is far from being unattractive when in such good condition. It is found that it succeeds best under cool treatment until the flowers are showing, when it should be removed to a warmer house to induce them to open, as otherwise they are liable to damp off.

— THE value of COOL-HOUSE ORCHIDS is admirably shown in Mr. W. Bull's nursery at Chelsea, and in one house alone there is now a display of Odontoglossums such as can scarcely be rivalled at this time of year. There are upwards of 140 spikes, the flowers on a large proportion of which are expanded, and the varieties are extraordinarily fine. *Odontoglossum crispum* is magnificently represented, and one of the varieties is the most handsome we have seen, although good varieties of this useful Orchid are now so plentiful. This has flowers of exquisite form $4\frac{1}{2}$ inches in diameter, the petals and sepals broad and beautifully fringed, white most delicately suffused with rich rose. Another handsome variety, named *roseum*, has smaller flowers, but is perfect in form and of a warm rose tint. *O. Pescatorei* is equally good, and one of the varieties deserves special notice, though all are fine. In this the flowers are rounded, pure white, with two dark purple spots at the base of the lip, which render the variety one of the most striking and handsome in cultivation. *O. odoratum*, *O. Rossi*, *O. baphicanthum*, *O. Cervantesi*, and many others are similarly fine.

— IN other houses are multitudes of vigorous Orchids, Cattleyas by thousands as healthy and promising as it is possible for them to be, *Oncidiums*, *Lælias*, *Cypripediums*, and scores of others; but perhaps there is nothing more remarkable than a grand lot of ODONTOGLOSSUM VEXILLARIUM—not in flower, of course, but in splendid condition, growing literally like weeds, and giving promise of a superb display next year.

— MESSRS. J. VEITCH & SONS have two great features in their Chelsea nursery—namely, ORCHIDS AND NEPENTHES, and at all seasons something of interest will be found if only those two of the multitudinous departments be visited. The Orchids claim first attention, and as usual the display well maintains the credit of the firm. The vast stock of Odontoglossums include all the best varieties obtainable, such as *O. Alexandræ*, *O. Andersonianum*, *O. blandum*, *O. Wilckeanum*, *O. tripudians*, *O. Rossi*, *O. nævium*, *O. maculatum*, and *O. deltoglossum*, being in strong force and bearing abundance of flowers. Cypripediums are admirably represented, not the least noteworthy being the favourite *C. Sedeni*, while *C. euryandrum* and *C. calurum* deserve prominent notice. A very handsome Cattleya—viz., *C. Dodgsoni*, is also in flower, the blooms being of great size; the sepals and petals large, blush white, and the lip tipped with rich rosy crimson—in fact it is one of the best of a handsome genus. *Maxillaria nigrescens* is a curiosity, and beautiful in contrast with the lighter-coloured forms, such as *M. grandiflora*. The sepals and petals are narrow and of an extremely dark rich reddish brown hue. *Phajus irroratus purpuratus* is a distinct variety with a rosy purple lip and white sepals and petals—a pretty contrast. The yellow *Oncidium cheiroporum* is in fine condition. *Lælia anceps* and *acuminata*, with *Angræcum sesquipedale* and *A. Chailluanum*, also attracting notice, the former by their rich crimson flowers, and the latter by their white wax-like blooms.

— IN the NEPENTHES HOUSE there is quite a forest of pitchers, probably some thousands of the most varied dimensions, some of sufficient capacity to hold a pint of water. The highly coloured *N. madagascariensis* and *N. Mastersiana*, with *N. Rafflesiana*, *N. Hookeriana*, the very distinct *N. Veitchii*, and the large *N. bicalcarata* and innumerable others, are in the best possible condition, and well indicate the value of such plants in a decorative point of view when judiciously treated.

— A GRAND variety of ANTHURIUM ANDREANUM is observable in one of the houses at the above nursery, the brilliant scarlet spathes being nearly 7 inches long by about 5 inches in breadth, and produced very freely. The superb *A. Wallichii* and *A. Veitchii*

are also in grand condition in the same house, the leaves of great size, and the former finely coloured.

— MESSRS. JAMES CARTER & CO. have now a good display of PRIMULAS AT PERRY HILL, but they are not yet at their best, and in the course of a few weeks will doubtless improve considerably. However, the merits of these carefully selected strains can even now be readily seen. Much attention is paid to these plants at Perry Hill, and, as a result, improvements are being annually effected, the colours being varied and deepened, the form of the flowers perfected, and the habit rendered more compact. Very notable amongst the most recent forms obtained is one with remarkably rich rose-coloured flowers, the deepest shade that we have seen. A handsome Fern-leaved white variety has also been selected, of extremely sturdy habit, the flowers large, beautifully fringed, and pure white, with a dark well-defined eye. The light rose and crimson, with the ordinary white varieties, are all meritorious in a high degree. The celebrated "blue" Primula Holborn Gem has its colour well developed, while a still further improvement has been effected in it, a form with much darker flowers having been selected. It is quite evident that we shall soon have a strain of really blue Primulas, as still greater advances may be expected.

— MESSRS. H. CANNELL & SONS' Swanley Nursery as usual contains a number of attractions, but specially noteworthy just now are the PRIMULAS, ZONAL PELARGONIUMS, AND SALVIAS, which occupy several large houses, and present a brilliancy that is most welcome at this season. Of the first named the noted varieties Swanley Red, Swanley Purple, and Swanley White constitute the bulk of the stock, but many others of the best strains are also grown, together with new and striking selections. The Zonal Pelargoniums both single and double are magnificent, and the varieties are so numerous, each possessing some special merits, that it is difficult to make a selection. However, some of the most effective are the following:—Singles: W. B. Miller, deep scarlet; Eureka, white; Eurydice, purple-pink, white centre; Guinea, brilliant scarlet; Dr. Orton, very dark scarlet; Kate Farmer, bright salmon; Constance, pale pink; and K. Greenaway, rose-pink, white centre. Doubles: General Campinon, dark scarlet; Lord Mayor, bright pink; Gambetta, rich scarlet; La Quintinie, white; and Henri Cannell, purplish crimson—with many others equally handsome. Of the Salvias the brilliant blue S. Pitcheri, the scarlet S. splendens Bruanti, the violet-mauve and white S. leucantha, the purple S. Betheli, and the scarlet and white S. Mons. Issanehou have for months past maintained a superb display.

— IN the outside borders at the above nursery CARTER'S PERPETUAL BLUE VIOLA is proving the appropriateness of its title by flowering most abundantly. This is said to be the result of a cross between Viola pedata and Viola Admiration, and has lavender-blue flowers of good size, possessing a slight but most agreeable fragrance. The latter quality, combined with its free and constant flowering habit, renders it a most useful variety, and one which will become a general favourite. In pots under glass the flowers come much larger and are extremely valuable for cutting.

— ONE of the finest and most interesting displays of Primulas perhaps ever produced may now be seen in the trial grounds of MESSRS. SUTTON & SONS at Reading. It is fine because of the distinct and superior strains, and the splendid culture that is represented—interesting because of the extraordinary character of many varieties that have been produced by crossing, not a few of which are grotesque in habit and colour, while others are strikingly beautiful. Ruby King, which occupies the whole of one side of a house, is a rich glowing mass of colour such as is seldom seen, the trusses being dense, bold, and brilliant. Perhaps their

appearance is the more striking by the contrasting effect of a mass of the charming white variety Pearl that occupies the other side of the structure—a perfect sheet of beautiful flowers. Reference to some of the newer varieties must be postponed, but the doubles, raised from seed, demand prompt mention. In form, richness, and chasteness of colours they are alike noticeable, and they, with the Cyclamens, which are of the very first order of merit both as to culture and condition, are faithfully represented in the new catalogue now being issued. Altogether the display is most meritorious—quite a museum of Primulas—and the firm deserve high commendation for the results that have been achieved.

— WE regret to learn that MR. WILLIAM HINDS recently died, after a very short illness, at the early age of thirty-eight. Mr. Hinds has held the position of head gardener at Roby Hall, Otterspool, Liverpool, and Canford Manor, Dorset, and he had been permanently engaged on the staff of the *Gardeners' Chronicle* during the past year. On leaving Liverpool he was presented with a gold watch as a token of the esteem in which he was held, and during his residence in the south his urbanity of manner and his assiduity in the fulfilment of his duties gained him the respect of many friends.

NOTES ON GRAPES.

THE various opinions expressed upon Grapes in your columns are undoubtedly very interesting, and quite necessary for the peculiarities of the different varieties being fully understood. A correspondent on page 469 has contributed an useful article on this subject, and I will endeavour to give your readers the benefit of my experience with the varieties there discussed.

Your correspondent begins with Madresfield Court. It is quite true, as he says, that the original recommendation of this being a grand late Grape was very misleading. In more than one establishment I know a whole house was planted with this variety for a late supply which ended in disappointment, and after ten or twelve years' cultivation it is found the most suitable place for it is the early vinery. It is very gratifying to find out the good qualities of this Grape. I have often seen Madresfield Court indifferently grown, and it has not been altogether satisfactory here, but after observing the bunches exhibited by Mr. Roberts of Gunnersbury at the Alexandra Palace two years ago, and the following year at the International at Manchester, gave me fresh courage; and with another trial I hope to succeed better. I feel sure if Mr. Roberts would detail his practice in producing such splendid examples as he exhibits, and how he prevents the berries cracking, he would confer a benefit on more growers of Madresfield Court than myself. Like many more I cannot afford a house exclusively for its cultivation, but have it planted in an inside border of our early house.

Duke of Buccleuch I planted nine years ago, but it has not always given me satisfaction, although I have had the finest berries I have yet seen of this variety. Its great fault with me is cracking at the last swelling, which greatly disfigures it. My employer prefers this Grape to all others we cultivate. It is more satisfactory grafted on the Black Hamburgh, but I have never been able to keep the fruit in good condition more than three months after ripe. I should be glad if "NORTHERN," who on page 530 states he has seen the Duke in good condition six months, would give fuller details of the treatment and conditions under which the fruit kept so well.

The most remarkable bunches of this Grape I have yet seen were in the third-prize collection of six varieties of Grapes exhibited by Mr. Kirk at the International Show at Edinburgh in September last. These were simply grand, although perhaps smaller in the berry than usually seen. I heard several first-class Grape-growers say they did not know there was the length of bunch to be had in the Duke as shown by Mr. Kirk. It would appear from a report by "T. B.," in a contemporary, that Mr. Thomson finds something else requisite besides giving the variety a house to itself, and if the report be correct Mr. Thomson bores a hole through the shoots between the rod and bunch—rather an extreme measure. I have not yet tried the gimlet dodge, but have twisted a piece of wire tightly round the shoot below the bunch with good results, and prefer this mode to notching the lateral, as practised by some growers to prevent cracking of the berries. The Duke is well worth whatever extra care it requires

to grow it in a mixed house of early Grapes. Golden Champion I can say nothing about yet, as, although I have it planted in an inside border, I have not yet fruited it.

Mrs. Pince's Black Muscat.—I shall never forget my astonishment with regard to this Grape in 1868 when that excellent cultivator, Mr. Taylor of Longleat, then the foreman at Garston Vineyard, showed me a house which one Vine had filled and was bearing twenty-six or twenty-seven bunches splendidly coloured and finished, and the Vine but twelve or fourteen months old. I made a short report of this in the Journal, which was pretty well criticised; but nevertheless Mr. Taylor corroborated my statement if my memory serves me right. But notwithstanding all opposition Mrs. Pince is still in existence, and is well worthy of cultivation. Like some others it has its peculiarities, and its worst habit is in failing to colour well; yet in some places it is good. The best examples of Mrs. Pince I have seen were grown this autumn by Mr. Hollingworth at Wood Seat near Rochester, the residence of C. M. Campbell, Esq., and had they been in competition at Edinburgh I question very much if both the Veitch memorial medals would have gone to Hutton Hall. Mrs. Pince colours better if grown in a lower temperature than is usually accorded to this variety.

Mrs. Pearson I have planted, but it has not yet fruited with me. It has proved a bad grower; in fact, where all other Vines have made very good canes this is but very little larger than when first planted seventeen months ago. I have not yet seen it very good at other places, and should like to hear the opinion of others relative to this variety.

Golden Queen is very different to the above, and I consider this will prove one of our best late Grapes. It is a good grower, very fruitful, and requires no special treatment that I am aware of to have it in good condition; its only drawback is that, like Gros Colman, it takes longer to ripen than many other varieties. Mr. Wallis grows it on the extension system at Keele Hall, and the bunches excel in colour the best Muscats of Alexandria I have ever seen. Nowhere have I seen this Grape in such excellent condition as at Keele. Whether Mr. Wallis has it grafted I cannot say, but I consider it colours better on its own roots.

Duchess of Buccleuch I do not grow, nor do I consider the variety worthy of a place, as the smallness of the berries detracts from what other good qualities it might possess as regards flavour.

Tynningham Muscat I prefer to all other varieties of Muscat, being finer in bunch and berry with me than any of them, and quite equal in every other good quality.

Alnwick Seedling I have grown three years, but as yet not to my satisfaction, as but few of the berries swelled, the majority being like Black Currants. I should have discontinued growing it but for the information recently given in this Journal as to its requirements, but am giving it another trial, when I hope to succeed better.

Gros Colman is a truly noble Grape, but requires a high temperature to finish it well. The foliage of this Vine is the most tender of any variety I know, being so liable to scorch or curl. I find this Grape very much improved when grafted on the Muscat of Alexandria. I have had no difficulty in keeping Gros Colman in bottles of water, but it requires a rather higher temperature in the fruit-room than is requisite for other varieties when kept in the manner indicated.

Lady Downe's is undoubtedly our best late-keeping Grape. With me it does not scald until it commences colouring, and to counteract this we admit more air and afford less atmospheric moisture. White Lady Downe's I once grew, but its flavour was so inferior that I did not consider it worth cultivation, so cut it down and grafted Foster's Seedling upon it. This, I consider, one of our best Grapes, and considerably superior to Buckland Sweetwater for an early vinery. Certainly it has not so fine appearance, but its other good qualities compensate for this; moreover, it is good for table use, and keeps well up to Christmas.

West's St. Peter's.—This is good and worthy of more extended cultivation. It is a thin-skinned Grape, keeps well, colours well, bears well, and is one of the best Grapes in cultivation for a sick person. It was a great favourite with the late Mr. Alport when gardener at Doddington Park, and I do not recollect to have ever seen it better grown than by that good cultivator.

Black Alicante is a very useful late Grape, and with me keeps as well, or nearly so, as Lady Downe's. Gros Guillaume, incorrectly called Barbarossa, is another good late-keeping Grape, but requires growing on the extension system to secure the best results. With me the bunches require support, as I have often found them part in the footstalk and fall to the ground when suspended in bottles of water.

The Muscat Hamburg is the finest-flavoured black Grape, and if it was more amenable to ordinary cultivation would be a universal

favourite. If planted in a somewhat stiffer soil than is usually recommended for Vine borders an improvement will be perceived. This also applies to Duke of Buccleuch. There is another Grape I should like to hear what Grape-growers have to say respecting its good and bad qualities, and that is the Golden Hamburg.—CHAS. ROBERTS, *Highfield Hall Gardens, near Leek.*

LAPAGERIAS.

LAPAGERIAS are among the few plants which succeed well with abundant root space. The method to follow with a plant established in a small pot as received from a nurseryman is at once to remove it into one 8 or 9 inches in diameter, draining the pot well, and employing as compost turfy loam and peat, with nodules of lime rubbish freely intermixed. After a time growth will commence, and in due time the pot will become full of roots, when they must be shifted once more into a larger pot at least 4 inches wider than the one to be set aside. This shifting must be continued if the plant is to be kept growing in a pot, as the more abundant the roots the stronger and more numerous will be the shoots annually thrown up from the base of the plant. It may be stated, however, that a 13-inch pot will, with occasional rich surface-dressings supplemented by waterings with liquid manure, keep a plant in good condition for several years, but not so luxuriant as if more liberally treated as to root space. Returning to the first start of our typical plant, this growth must be carefully trained on a string under the roof of the structure in which the plant is growing. Year by year the same care must be taken with young shoots which may be produced. To prevent overcrowding the first spindly growths should be cut off close to the soil, and all along the future of the plant should be studied by allowing at least 6 inches between each main growth. The above is the only certain mode of obtaining large blooms and plenty of them. It may be noted here that this plant is not particular as to aspect. It does well full in the sun, in the shade, or under conditions between these two; plenty of root-room, head-room, and water apparently being the conditions most favourable to its healthy growth.

Though I have plants growing in pots under conditions as above recommended, at the same time I would recommend even more space at the roots than can be provided by pots, and, in fact, prefer planting out in beds more or less restricted in size to the room at command. The progress a plant makes after being planted out is really astonishing, and the number of flowers produced for at least six months of the year is very great indeed. The compost should be of an open nature. Plants I have had to do with, put out in a soil in which Camellias flourished, made no progress until a different kind of compost was employed.

I have a large specimen which was planted out in a bed specially made for it seven years ago, the compost used being the older roots of *Lastrea dilatata*. This year the blooms have declined considerably in size, but this I expect to overcome by a thick dressing of rich material and occasional manurial waterings. These old plants seem to be very prolific of seed pods, which to anyone wishful of increasing stock would be the most ready means of doing so. In the case of the white variety this would of course be a risky way of promoting increase, as the plants resulting from such seed would require to be flowered before being sure as to colour. I have an idea that there are two forms of variety of the white Lapageria—one smaller than the other, and not so strong in growth or so large in the foliage. Perhaps some of your correspondents or readers are able to say if this is so.—B.

LIBONIA PENRHOSIENSIS.

AMONGST the most useful plants for winter decoration Libonias play a very important part. They are easily grown, and well repay a little extra trouble bestowed upon them. Your correspondent "LEADENHAM" (page 552) speaks very highly of *L. grandiflora*, and gives some cultural remarks respecting it. *L. grandiflora* is a great favourite with most people, being extremely useful for conservatory and room decoration. If your correspondent has not already tried *L. penrhosiensis* let me recommend it to him and others desirous to possess another winter-flowering plant, and in my opinion far surpassing *L. floribunda*. *L. penrhosiensis* is quite distinct from the latter both in foliage and flowers. The foliage is much larger, and has a beautiful polished surface. The flowers also are much larger than *L. grandiflora* and more highly coloured; instead of the yellow being so prominent they have a bronzy hue. In addition to the above it is decidedly more floriferous. The treatment recommended by "LEADENHAM" for *L. floribunda* will apply to *L. penrhosiensis*, but I find an occasional supply of liquid manure or Clay's

fertiliser given about twice a week when the plants are showing flower to be very beneficial. With us our plants have been in flower since the beginning of November, and will be very attractive for some time yet.—W. K.

A SPECIMEN CHRYSANTHEMUM.

ALTHOUGH Chrysanthemum shows are visited by thousands of persons who become familiar with the wonderful examples of culture that are staged, yet, nevertheless, by far the larger proportion of our readers have not had an opportunity of seeing these brilliant autumn tournaments, and some of them, as we know, have a suspicion that the descriptions of the blooms and plants are sometimes a little exaggerated. A photograph, however, does not exaggerate, and the engraving shows a dwarf-trained plant, one of others equally good, in a group at the late Kingston Show. The engraving represents as truly as a figure can do one of the magnificent specimens exhibited by Mr. C. Beckett, gardener to

T. H. Bryant, Esq., Glencairn, Surbiton Hill, and we are pleased to add a few particulars of a group which reflected the highest credit on the exhibitor.

The three largest plants each measured 21 feet in circumference, and most of the other specimens 15 feet. When staged they presented one sheet of bloom 60 feet by 20 feet, filling the entire end of the hall. Mr. Bryant's gardener has obligingly furnished us with an outline of his treatment, which is as follows:—"I insert the cuttings in December, and as soon as rooted keep them growing freely, and without a moment's check, till they are finished, supplying them with stimulants as needed. They are stopped periodically until the middle of July, and are then permitted to form and develop their flowers. These directions are very general, but very much depends on the judgment of the cultivator and his devotion to his profession. To be successful with any plant it needs constant attention early and late, the slightest neglect being fatal to success. I would add that special care must be exercised to keep the plants free from the many pests that

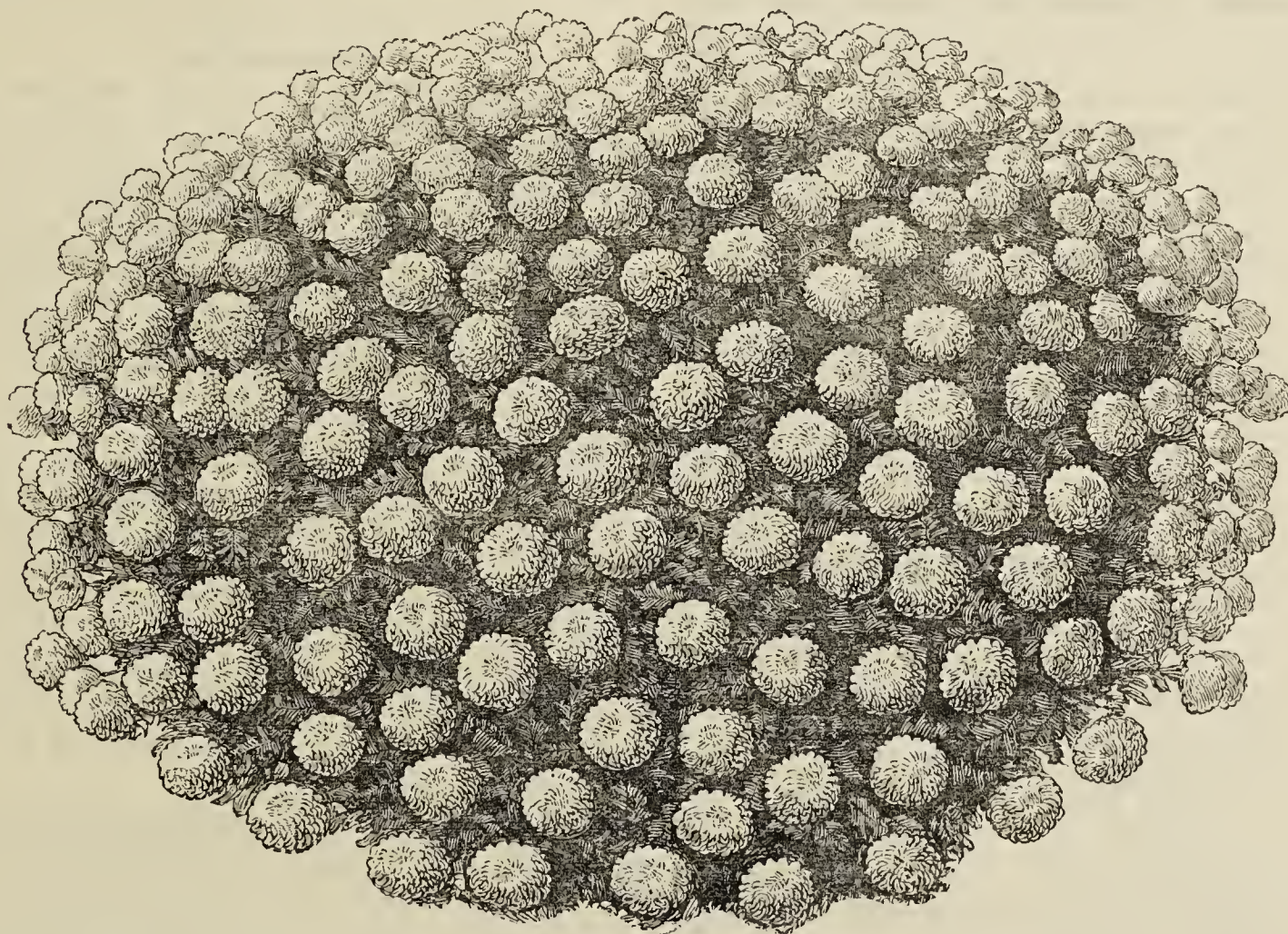


Fig. 102.—SPECIMEN CHRYSANTHEMUM.

are ever ready to attack them. I am proud to say that Mr. Bryant received the commands of H.R.H. Duke of Albany, and that I had the honour of taking the three largest and two smaller plants to Claremont. The Duke and Duchess expressed themselves very much pleased at having had the opportunity of seeing them, saying "they had never seen finer."

We have only to add that both Mr. Bryant and his gardener have good reason to be proud of such specimens. The plant being "tilted" the pot is necessarily hidden.

We regret that we have not space this week for an excellent paper on Chrysanthemum culture which was read at a meeting of the Wimbledon Gardeners' Society, and by request of the members sent to us for publication. It will appear in an early issue. We are obliged also to defer the publication of notes in answer to "J. L." on page 556.

BORDERS FOR HARDY FRUIT TREES.

At the commencement of my previous notes on fruit borders (page 541), I proposed writing a second paper on the subject,

which I now offer. What I shall attempt to demonstrate is that we do not do justice to our hardy fruit trees; in fact, in the matter of borders we go as much to one extreme as we do in the opposite direction when we form excessively large borders for house-cultivated fruits.

It is true every walled-in kitchen garden is provided with so-called fruit borders, but in how many cases do the trees have anything like the full benefit of them? In reality the choicest fruits do not receive as fair treatment as ordinary orchard trees, owing in this case to the shape of the trees or other causes hindering the digging and heavy cropping the borders devoted to the wall-trained trees have constantly to undergo. To all appearances in most gardens the vegetables and not the fruit trees are of primary consideration. Neither are gardeners altogether to be blamed for this, as they are bound to produce continuous and heavy crops of vegetables and small fruits from a comparatively small space of ground. As a consequence not only are the borders immediately in front of the trees closely dug and cropped, but the space at the foot of the walls is also utilised; at the same time, if gardeners must persist in this close cropping, they can at

any rate avoid planting such gross-feeding and comparatively permanent crops as Violets, Strawberries, Parsley, and herbs generally on these borders. The former, especially when planted at the foot of the walls, are very injurious, as they impoverish the border to a great depth; and a herb border near the walls inevitably impoverishes the land, yet both cases are by no means rare.

Quick-growing crops, such as Potatoes, Cauliflowers, Kidney Beans, Turnips, and Lettuces, are not so objectionable, especially seeing how frequently the ground for early crops of these is favoured with regard to heavy dressings of manure. The manure is very beneficial to well-established fruit trees; but unfortunately the frequent diggings have the effect of driving the roots of the trees down into the subsoil, and this, it is almost needless to repeat, is quite in the wrong direction. Under the system at present pretty generally in vogue, and which I must admit to a certain extent unavoidably prevails here, we may look in vain for the valuable fibrous roots.

The roots of most trees, and more especially, I think, of Pears, require but little disturbance to induce a downward tendency, and if active steps are not taken to prevent the misfortune becoming intensified the decadence of the tree will soon be seen. Not only have the wall trees under my charge rooted down into the cold subsoil, but the pyramids are in the same plight. Fruit trees of any kind with several roots 2 inches in diameter deep down into clay, and with but few if any surface roots, are certain to produce crops of cracked worthless fruits. In our case I should say the Strawberries, Gooseberries, Violets, and Parsley I found planted about the trees were the primary cause of this deep-rooting. These have been cleared off as much as possible, and according as we are able these gross roots are severally shortened, the trees raised, much clay cleared out, fresh soil added, and all medium-sized roots brought nearer to the surface. There I hope to be able to keep them, and eventually be able to point to crops of fruit equally as fine as those grown on trees and in the gardens at Ashton Court, which were treated in a very similar manner by Mr. Austin, the well-known practical gardener in charge.

It is really a blunder to begrudge a good Apple, Pear, Plum, Peach, Nectarine, Cherry, or Apricot tree a few feet of border room, say half the square feet of wall or ground the tree covers. If we gave it a thought we should remember the crop of one tree is oftentimes worth more than all the vegetables obtained from a considerable length of border. Eight dozen fair-sized fruits from a fully grown tree of either Peaches or Pears is not a particularly heavy crop, yet these are or were worth to the proprietor this season at least 32s., and would find a ready market at 24s. We should have to market a considerable quantity of vegetables to realise that amount. I say, Give the roots of the trees fair play and mark the result.

That the sheltered wall borders prove extremely or rather comparatively profitable vegetable quarters must be admitted. But I am under the impression if other open sunny spots were as well managed they would produce vegetables quite as early and equal in quality. Where are the earliest vegetables in any quantity grown that are sent to the London markets? Certainly not in walled-in gardens, but in the open fields. The designers of the majority of kitchen gardens make a radical mistake by forming the wall borders much too narrow, and this materially affects the system of cropping. Instead of being 10 or 12 feet wide (they are often narrower) they should be 20 feet wide, and of this a width of 5 feet at the very least ought to be devoted exclusively to the fruit trees. Under such circumstances the roots would be encouraged to remain near the surface, where the freely formed fibres would revel in the liberal top-dressings of manure they ought to receive when the trees were in full bearing. These favourable conditions would result in better ripened growth, more frequent crops of fruit of the best quality, and much less necessity for frequent replantings in order to replace trees prematurely dead or dying.—W. IGGULDEN, *Marston*.

MUSHROOM-GROWING IN SPHAGNUM MOSS.

THERE are now in full bearing at "Broomfield," Sheffield (the residence of B. P. Broomhead, Esq.), several Mushroom beds, which for quantity and quality of the produce I have not before seen equalled, except in the case of Mr. J. Barter's outdoor beds, which were figured in the Journal of May 4th, this year, page 359. Mr. Walker, the able gardener at Broomfield, tells me that the material of which these beds are composed consists solely of sphagnum moss imported from Germany, where it has been artificially dried and afterwards compressed by hydraulic power into cakes or bales of about 1 cwt. each, and which are sold as a patented bedding material for horses, &c. Mr. Broomhead purchased a quantity for use in his stables, where its merits are appreciated, as it speedily

and readily absorbs all the drainage and ammonia, and keeps the stable free from all unpleasant smells. Thinking it would be a good material for Mushroom-growing, Mr. Walker made up some beds with it, which have succeeded beyond his expectations. He says he has never before had beds which have been so quick in coming into bearing or so lastingly productive. He commenced gathering Mushrooms in five weeks from the making-up of the beds, and when I saw them he had been gathering from them every day for five weeks, and the beds then were quite covered with fine Mushrooms, which are very thick and solid. He also showed me a box which by way of experiment he had filled with moss which had not been used in the stables, but which he had saturated with stable drainage from a tank where it is collected. This upon being made up into the box heated very strongly, so that he had to wait a number of days for the heat to subside before spawning, but when I first saw it the spawn had run through it and Mushrooms were appearing apparently as thickly and as freely as upon the other beds. On a subsequent examination there was no doubt the experiment was a great success, as the box was crowded with splendid Mushrooms.—W. K. W.

INSECTICIDES.

UNDER the above heading in a recent issue of the Journal I read with considerable interest the able contribution signed "HORTUS." I beg, however, to differ from him as to the application of sulphurous acid in the manner indicated. Brimstone I have detested in any form from childhood upwards, when it was used internally, externally, and threatened eternally; and, in my opinion to subject Abutilons, Coleuses, Poinsettias, and other choice softwooded plants to the influence of an atmosphere charged with sulphurous acid fumes for twelve hours means sudden death. Sulphurous acid contains 9.2 per cent. of gas in suspension, hence I caution experimenters to first sponge themselves with the acid (which will soon evaporate), and note the condition of their respiratory organs. This simple process will, I believe, be conducive to plant-longevity. As to Dalmatian powder, it is a most valuable insecticide; but, again, I differ from your correspondent "HORTUS" as to its application. Let us trace its origin and see wherein its energies exist as an insecticide. It is prepared by grinding to powder the dried and expanded florets of a composite plant which grows freely in the sandy plains of Persia and Asia Minor, possessing when freshly prepared a pungent, aromatic, characteristic odour, and herein lies its power. It acts more as a repellant than a poison, and should be used like snuff—dry.

I have grown the plant and find the flowers inert, not possessing the qualities for which the exotic ones are noticeable; and I find negative results from its use in solution as suggested by "HORTUS;" indeed, a more effective solution can be prepared from any of our indigenous composite plants, such as Camomile or Tansy.

But if may be asked what practical suggestions I have to offer on the subject of insecticides; and although I am not entitled to a blue ribbon I shall place first and foremost water, and to satisfy readers of a bucolic tendency we will occasionally have it hot—say 140° Fahr., for some plants. Next I place tobacco, which I have diligently employed ever since I escaped parental control. But my object in writing is more especially to draw the attention of practical men to the employment (as insecticides) of the juices of plants of an acrid or poisonous nature.

It is notorious that certain plants are injurious to insect life. Take, for instance, the common Elder (*Sambucus nigra*), the Foxglove (*Digitalis purpurea*), while the whole order Ranunculaceæ, inclusive of Aconites, Crowfoots, Hellebore, and Delphiniums, possess acrid properties fatal to insect existence. Why not utilise these remedies?

Take, again, the immunity from attack enjoyed by the Scotch Fir and all the Cedar tribe of forest trees. From these we obtain wood tar and turpentine, so fatal to insect life and so invaluable to the entomologist. Would not an infusion of the bark of the *Pinus palustris* (*P. australis*) aid us? The seeds of the Delphinium *Staphisagria* have been used for centuries in the form of decoction to destroy lice in cattle, also rats; and quaint old Gerard states that they were some time used in apophlegmatisant gargles, so with this character it is needless for me to refer farther to the power of the Stavesacre seed beyond saying that it is cheap.

As to Mr. Speed's remedy for American blight, may I suggest to him the use of wood tar in preference to gas tar? My process is this for standard fruit trees: First slake a peck of lime with water to the consistence of cream, and whilst still hot add one pint of the brown oil of tar. This when mixed forms a tar soap or emulsion, which annihilates the American bug wherever employed. Colour with soot if you like.

Finally, I must strongly recommend the soluble fir-tree oil, together with the spray-diffuser, which enables the operator to direct a spray of the vapour in every cranny, and without injury to the most delicate plant life. The spray-producer is especially valuable, as it carries its insidious vapours where the syringe would be ineffective.—W. LITCHFIELD, *Coventry*.

PEAR PRINCE NAPOLEON.

As a late Pear the merits of this variety are not perhaps sufficiently known. It is of comparatively recent introduction, having been raised from the seed of *Passo Crasanne* in 1866. Mr. Haycock, Barham Court Gardens, the grower of the fruit now figured, writes to us relative to this Pear:—"My experience with *Prince Napoleon* is that it is a most excellent late Pear, and one worthy of attention. It does not succeed here on the *Quince*, but grows well on the Pear stock. It makes rather thin weak short-jointed wood, and forms fruiting spurs very freely. It also succeeds very well double-grafted. I find *Beurré Hardy* makes a good stock for it, but I much prefer the Pear stock. The fruit is rather small, and very much like *Passe Crasanne*, but, though not so large, is a little longer;

skin dark brown russet. In use during January and February, and has a sharp brisk flavour—a quality that many people like."

Our description of *Prince Napoleon* is as follows:—Fruit unoven in its outline, roundish or Bergamot-shaped, somewhat knobbed at the stalk and the crown. Skin entirely covered with rough brown russet, so much so as to leave the ground colour exposed like yellow speckles. Eye large and open, with long erect segments set in a deep, uneven, and knobbed basin. Stalk very stout, 1 inch long, inserted in a deep uneven cavity. Flesh yellowish, buttery, melting, sweet, and juicy, with a very high balsamic flavour, which to some may be unpleasant. It is really a strong *Seekel* flavour. A very fine Pear in the end of February.

AZALEAS FOR FORCING.

A FEW notes on some varieties of Azaleas that have been proved by the writer may be acceptable to some of your readers.

Narcissiflora.—A general favourite, which is invaluable for early forcing. Though the individual flowers are not particularly fine, the large quantity of them compensates in a great measure for this slight defect. No collection can be considered complete without some of this variety.



Fig. 103.—PEAR PRINCE NAPOLEON.

A. Borsig.—A very fine white, a good forcer and neat habit; the individual flowers much finer than *Narcissiflora*.

Iveryana.—Another good white, but it hardly forces so well as the previous two. Madame Camille von Langenove is a beautiful variety, semi-double, white striped with red. It proved with me a fair forcer.

Baron de Vriere.—A fine large white with small pink stripe. The only objection I have to this is that it sometimes flowers unequally, half the plant being in full bloom, and the other half with the buds hardly swelled. This has often perplexed me.

Apollon.—This has a handsome large flower, white with slight rose stripe; it also proved a rather unequal flowerer.

Bernard Andreas alba.—This is a superb kind, and should be in every collection. The rose variety is equally fine.

Raphael.—White, double, and in addition sweet-scented; it did not prove a very equal flowerer.

Flag of Truce.—Another double white; very large flowers, forcing very well.

Souvenir de Prince Albert.—A very free-flowering semi-double, rose and white; should be in every list.

Sigismund Rueker.—One of the very best, rose and white, large-flowered, and very profuse; should have a place in every collection.

Baron Ossey.—A very good forcer, flowering very freely; flowers not very large, and of a brownish crimson.

Madame Vander Cruysen.—This is a grand variety, forcing admirably, and flowering very profusely. The flowers are large, of a beautiful rose colour.

Rachel von Vornhagen.—Another variety in a great measure resembling the last mentioned, of a rosy red, and a very free flowerer. I consider the last two very splendid varieties for making a display, and all who wish for that should grow a large proportion of them.

Roi d'Hollande.—Red; a good free-flowerer, individual flowers not particularly fine.

Punctulata.—Dwarf rosy red, flowering very freely, and invaluable as a dwarf decorative flowering plant.

Jean Verraene.—A beautiful variety, red and white; flowers very large. This is admired by all who see it, being a striking object among many others that are not mean rivals.

Comtesse de Flandres.—Rosy, very free flowerer, and good forcer.

These are some of the varieties that have been tried by me, and I have endeavoured to speak of them exactly as I found them. The descriptions in catalogues, though not meant to be deceiving, are naturally rather glowing, and in some cases the objects of

much laudation in catalogues prove far below the standard of merit assigned to them. It would be much more satisfactory for all concerned if nothing but the very plainest truths were employed in descriptions of plants. Vendors would, in the long run, profit by only praising what they could positively declare were good. The rage for new varieties of plants of all kinds is tempting, no doubt, to those who have to supply the demands of the public, and leads to the varieties being over-praised simply because they have some little novelty about them. Varieties that have proved good should not be placed aside for others whose chief recommendation is that they are "new."—A MARKET GROWER.

A BOUQUET DISSECTED.

To whom are we indebted for setting the latest fashion in ball-room bouquets? I make the inquiry, not because I am anxious to perpetuate the inventor's fame, but because I am so thoroughly disgusted with the style as to wish to hold them up to opprobrium. Call me uncharitable if you will, but when we see such monstrous bouquets as are now being borne in ball-rooms, who can help pitying gardeners who, at this dull season of the year especially, have to imitate a fashion initiated doubtless by those interested in the sale of as many choice flowers as possible? These "sweet things in the way of bouquets" average 45 inches in circumference, some in fact being 18 inches in diameter—this, be it remembered, being all flowers, as Fern fronds and papers are scarcely seen. In some instances nothing but Violets are employed, in others Violets in equal proportions with the choicest white flowers, while many white Camellias, Eucharises, Roman Hyacinths, and Gardenias are freely used.

The bouquet I contrived to secure when its owner had had enough of it was composed exclusively of Gardenias (thirty-six in all), Maidenhair Fern, much extremely dirty moss, wire in great quantities, the holder and twelve strong brass pins varying in length from 3 to 4 inches. Very little growth was cut with the blooms, but each, unless bunched as they sometimes were, had three or four wire stems bound together, the longest two only passing into the handle. They were arranged almost flatly, and a few blooms were bent over the side which was to be carried uppermost. The Gardenias were really bedded among the moss, this serving to keep them in position, and being freely damped also to preserve freshness. The bouquet was first placed in a collar of stiff brown paper, then in a wider strip of the same material covered with white satin and fringed with two bands of lace, the large pins securing these in position. The bundle of wires serving for a handle were then surrounded with soft tissue paper in such a manner as to fit tightly in a neat bouquet-holder, then more pins, and this too highly scented combination of the sublime and ridiculous was completed.

The only consolation in connection with the subject I can find at present is the thought, how wearied the proud bearers of these monstrosities must have felt long before the ball was at an end. At any rate this must have been the case if those as large or larger than my specimen, as this weighed in its entirety exactly 24 ozs.; and I should say the strongest of us would not care to carry such a weight near our noses for more than a hour at a time. Indeed they had to be left on the seats when a dance commenced, and for this reason alone I should say they will not long remain fashionable.—W. I. M.

GOOSEBERRY-GROWING FOR MARKET.

THE annual statement of the weights of the heaviest prize-winning Gooseberries is certainly very tempting, and I for one must plead guilty to having weakly yielded to an ambitious wish to see what I could do in that direction by planting the whole of them and many others. An answer to a correspondent on page 558 shows that would-be growers for market are also tempted by the "monsters." Nor can it be wondered at, for upon the face of it Gooseberry culture appears most simple, and one might reason that if certain sorts grow to so large a size under peculiar care and skill, surely they will be considerably above the common size under ordinary methods of culture. But in reality there is as much difference in Gooseberries as there is among Pears and Apples. Weakly drooping spreading growth, shyness in fruiting, poor insipid flavour, and premature fruit-shedding are all to be found among them. Warrington is undoubtedly the best of all, either for green or ripe fruit. In the green state it is ready for picking early, it ripens slowly, hangs long upon the bush in prime condition when ripe, and ranks in general estimation among our best late sorts either for jam or eating. It has been so useful to me for so many years that I consider it the best for any purpose.

Its habit of growth is excellent, and it is so sturdy and robust as to flourish in our poor thin soil where many other sorts planted near it have perished after a brief existence of a few years. In the valuable "Hints on Vegetable and Fruit Farming," published in the last number of the Journal of the Royal Agricultural Society, Mr. Whithead speaks of Warrington in unqualified terms of praise. That gentleman lives in the very heart of the Kentish fruit-growing district, and his opinion is most valuable. He recommends Whitesmith and Early Sulphur for picking green, and has a good word also for Lancashire Lad, Red Rifleman, Golden Drop, and Monarch. Of prize sorts he considers Roaring Lion, Leveller, Leader, Napoleon, and Careless good, but he only mentions them as garden sorts, profitable if grown with special care.

A brief extract of quantities and prices may usefully be given—"Directly the berries are large enough the bushes are picked over, and the largest are sent to market, when they make 3d. to 3½d. per lb., or even more at the beginning of the season, but the price soon falls to 2d. and 1½d. per lb., and even to 1¼d. per lb. An average crop from Gooseberry bushes in full vigour would be between 6500 and 7500 lbs. per acre, and the price between 1½d. and 2d. per lb. Occasionally, when the soil is well suited for these bushes, very large profits and quick returns are made. The expense would depend upon the amount of the crop in respect of picking, carriage, and salesmen's charges. The expenses in connection with the cultivation alone would range from £10 to £12 per acre, and all other charges in the case of an average crop would amount to £7 or £8 per acre." The bushes are 6 feet apart, or 1210 to an acre in some cases, and 5½ feet, or 1440 to an acre, in others. The ground is manured and dug in winter, and hoed once or twice in summer.

These interesting facts of what is done in Kent are important, and are safe data for the guidance of beginners in other parts of the country. The only question to which they give rise is, Could not Gooseberries be cultivated more cheaply? I have two rows of Warrington, which were planted twelve years ago, now in full vigour, and always bearing a full crop of fine fruit, among which there has been no digging for full half that time, probably longer. An annual surface dressing of manure is given in winter, and hoeing if weeds appear in summer, but digging would certainly do more harm than good, for the soil near the surface is crowded with roots. Nobody digs a Vine border for the same reason; why, therefore, should we dig a fruit plantation, provided the land is drained and rendered pervious to the quick passage of rain water before planting?—EDWARD LUCKHURST.



KITCHEN GARDEN.

Forcing Department.—It will be necessary to keep fermenting materials in a state of preparation for use in this department; and as a larger bulk than usual is generally required for the next two months, it will be found desirable to mix two parts tree leaves with one of stable manure, which will considerably increase the bulk, and the heat, although not so strong as in stable manure alone, will be more regular and durable. The Radishes sown last month in heat will be coming on for use, and should have free ventilation, or they will be liable to damp off; similar remarks applying to those sown later and Carrots, which must not be kept close, or they will become drawn. Only sufficient heat by linings should be afforded as to keep them gently moving. Frames of Potatoes must be freely ventilated on all favourable occasions, applying linings to the sides of the bed alike for safety from frost and to promote a steady growth. Fresh beds should be made and planted with sets previously started in heat as pits or frames become available. Maintain the supply of Asparagus by the introduction of fresh roots at intervals according to the demand, similar remarks applying to Seakale, Rhubarb, and Chicory, the last three forcing admirably in a Mushroom house or other place having a temperature of 55° to 60°. Mustard and Cress must be sown at intervals so as to maintain a successional supply. French Beans will likewise require to be sown at fortnightly intervals to maintain a regular supply, ventilating those advancing freely when the weather

admits, keeping them well supplied with tepid liquid manure, and earthing up those sufficiently advanced.

The early stores of Lettuces and Endive must be frequently examined, removing all decayed matter. During favourable weather ventilate freely, but during severe weather cover them securely, and keep them in the dark, or do not uncover so long as the severe weather continues. Cauliflowers and young Lettuce plants in frames or handlights must be frequently examined for the removal of decayed foliage, dressing the surface, and stirring the soil between the plants.

FRUIT HOUSES.

Peaches and Nectarines.—In the earliest house the flowering has already commenced. This degree of forwardness may not yet be attained by trees which have not been forced early in former years, and in this case it is not advisable to push them hard, but let the same conditions prevail as were indicated in our last calendar. When the flowers begin to expand maintain 50° at night, falling a few degrees when the weather is severe. Raise the temperature early in the day to 55°, and keep it between that and 60° during the day, the latter not being exceeded by fire heat alone; and this should be accompanied by a circulation of the air in the house, opening the top ventilators a little at 55°; and as the temperature advances gradually increase the ventilation, having a free circulation top and bottom at 65°, closing for the day at 60°. Damp the surfaces in the house twice a day, ceasing to syringe the trees after the flowers expand, and leave a little air on at the top of the house constantly to prevent the atmosphere becoming stagnant. Dust the flowers with a camel's-hair brush when the day is fine and the house well ventilated to insure fertilisation. As the setting period during the dullest time of year is the most important throughout the whole process, the greatest care should be given to the requirements at that season.

The house containing trees intended to afford ripe fruit in June of such varieties as Royal George and Grosse Mignonne Peaches, Lord Napier and Elruge Nectarines, should now be closed. The inside border should have a thorough soaking with water at a temperature of 75°, and the outside border protected with a good thickness of dry leaves or fern. Syringe the trees and available surfaces in the morning and in the afternoon, so as to have the trees fairly dry before night. Ventilate freely from and above 50°, at which close the house, and employ fire heat only to prevent the temperature falling much below 40° at night.

PLANT HOUSES.

Forcing House.—In order to keep pace with the increased demand for flowers which prevails in most establishments almost every house is required. Stoves are crammed to the injury of the permanent occupants; and though numbers can be brought into bloom there, they are not nearly so good for decorative purposes as those forwarded in a house where the forcing is more gradual. A light airy house with beds for holding fermenting materials for bottom heat is a great aid in very early forcing, and if it have a partition so as to allow of one lot of plants being brought forward to succeed the other, and so on, the succession will be maintained with regularity. For most hardy plants 50° to 55° at night and 60° to 65° by day will be a suitable temperature after being kept in a house for a fortnight or three weeks in a temperature of 40° to 45° at night and 50° to 55° by day. Forcing hardy plants is much accelerated by syringing them in the morning and afternoon of fine days. Shelves should be provided so that Hyacinths, Narcissus, and Tulips will be near to the glass.

It is hardly necessary to direct attention to the many very beautiful plants that by gentle forcing contribute to the supply of cut flowers and plants for general decorative purposes. Foremost come Lily of the Valley, early in the season requires bottom heat. Lilac is indispensable. *Deutzia gracilis* is very graceful and effective, but is being rivalled by *Staphylea colehica*. The old *Viburnum Opulus*, or Guelder Rose, and the lovely *Laburnum*, with *Wistaria sinensis*, are a trio too seldom seen forced. *Spiraea Thunbergii* may be mentioned as a very graceful white-flowering plant. Clematises such as Miss Bateman, Fair Rosamond, The Queen, Albert Victor, Mrs. S. Baker, Vesta, Stella, Lord Londesborough, and Sir Garnet Wolseley, are charming.

Then there are *Rhododendrons*, with large heads of flower from the purest white to glowing crimson. *Azalea pontica* of the richest yellow and sweetest fragrance, the Ghent varieties being very beautiful. The *Azalea mollis* vars. force easily and have large trusses, being also very floriferous and very effective for any purpose. The Double Plum (*Prunus sinensis alba flore pleno*) is also useful, and the chaste *Kalmia latifolia* is always admired. Sweet Briar is always appreciated for its perfume. *Hoteia japonica* is not only an elegant and graceful plant, but its large white feathery inflorescence is very effective, and *Dielytra spectabilis* is a very graceful plant and useful for vases.



THE ART OF BEE-KEEPING.—No. 5.

(Continued from page 535.)

THE DRONE.

THE drones are the males of the colony, of which the queen and workers are the females, and they seem to be almost useless except for the purpose of fertilisation. As already observed, this takes place while the queens are on the wing, and is of such potency that the queen is rendered fertile for life. The limited observations seem to indicate that the drone dies immediately after mating. We know for certain that he leaves a mark of fertilisation, which any bee-keeper may observe who watches his young queens returning from their wedding flight. As queens are only reared by colonies in a normal state during the summer, drones are only produced during that season, and are starved to death or driven forth to die at the close of the honey season. The appearance of drones at other times thus indicates some abnormal condition of things—viz., a queenless stock, or the presence of an unfertilised or decrepit queen or fertile worker.

According to the Dzierzon theory, which is generally held to be correct, drones follow the race of their mother without respect to the nature of her alliance. Thus an Italian queen mated with an English drone will always produce pure Italian drones, though she produces mixed workers. This fact must be borne in mind by all who attempt to improve the race of bees by the introduction of foreign blood. For average bee-keepers, however, whose great aim is honey, the only concern in regard to drones is how to limit their production so as to be certain of reaping their one advantage without at the same time creating a host of useless mouths, at a great expense to the colony. And just here we must cross the ideas of those who cry out for a purely natural system of bee-keeping. In a state of nature one could never expect to find even two colonies within a yard of each other, or a score of them within the limits of a small garden. Let us suppose we should find one in every square mile—quite a liberal allowance. To make certain of a young queen meeting a mate during her short and rapid flights of a few minutes at a time, we should expect a colony in such circumstances to produce a large number of drones, and so it does. But when we crowd a country with hives so that dozens or even hundreds are found within a square mile, we are under no necessity for increasing the number of drones in like proportion. If those of a single hive were sufficient in a state of nature to patrol the whole neighbourhood they may be regarded as nearly sufficient still. And further, the production of drones is at great expense to the colony—they are gross feeders both in the grub and perfect state, and they bring nothing in. Drone traps, therefore, do not meet the case; prevention rather than cure is wanted. This we effect by the liberal use of worker-comb foundation, using sheets so nearly filling the frames that at most only a few dozens of drone cells can be built round their edges. Absolute restriction of drone comb is not advisable, especially where supering is resorted to, as in that case the queen in the exercise of a natural impulse to produce drone eggs will most probably deposit those in the supers and thus spoil their combs. It is observable, besides, that there is a vivacity and industry about hives that have a fair proportion of drones buzzing and bustling about their doorways, which is often wanting in those having no drones. On the whole we consider that we meet the case sufficiently by having, say, 50 out of the 1000 inches of comb in a standard hive with drone cells; a number sufficient for the production of four hundred drones every twenty-four days, which is the time required for the hatching of perfect drones from the egg. And we so arrange the combs that the drone brood is confined to the outside ones. Where early drones are wanted for breeding purposes we can usually obtain them by

inserting a comb containing drone cells right in the centre of the brood nest. Under such management drone traps, or the cutting-out of drone comb, become quite unnecessary.

BEE PASTURAGE.

Next to the natural history of the honey bee there is no subject on which bee-keepers should be so well informed as the pasturage from which the bees are expected to store their honey. This necessarily varies with each locality, and therefore any calendar of operations, such as is given in most bee books, is necessarily to be taken only as a general guide to management, which must depend so largely on local conditions. We would thus urge on all bee-keepers to construct for themselves a calendar suited to their particular circumstances, having as its basis the results of previous observations on the comparative value of the different sources of honey and the dates at which they usually begin to yield.

In these islands there are three main sources from which bee-keepers expect any considerable surplus, and these follow each other with but a short interval. These are fruit blossoms in April and May, Clover in June and July, and Heather in August and September. The later-flowering fruit plants, such as Raspberries, often fill the interval before the Clover blooms, and in many loca-

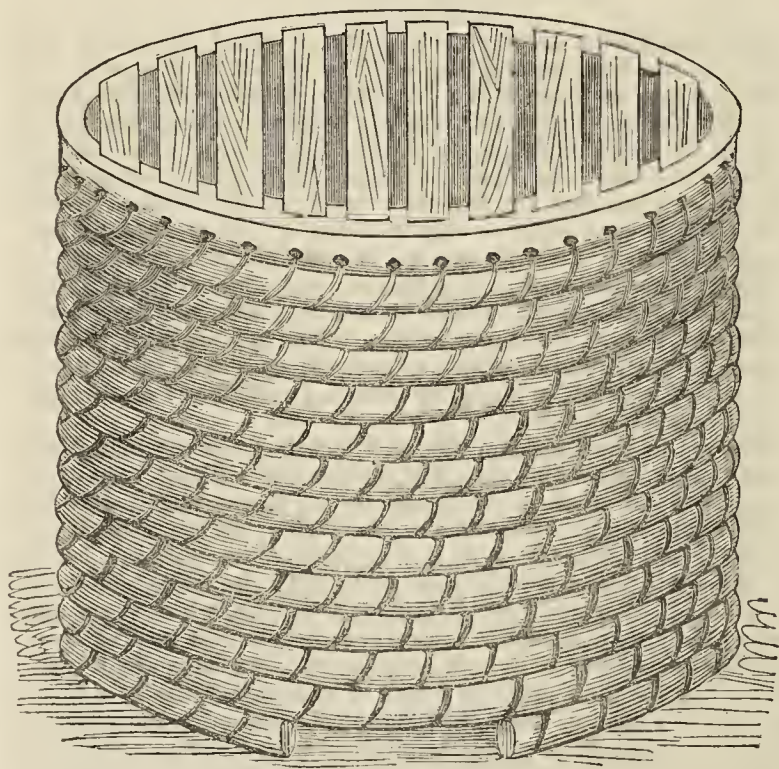


Fig. 104.—Stewarton Hive.

lities the Limes fill the interval before the Heather. Now, the management necessary to secure a surplus of honey in any locality must largely depend on which of these three great sources is the principal one in that locality. Dwellers in or near large towns will generally find that the fruit blossoms are the most productive, especially since it is becoming more and more the habit to cut down the Clover crops in such neighbourhoods for green fodder. In more pastoral districts Clover will take the leading place, and in moorland districts the Heather. Favoured districts are such as yield two of such harvests in succession, but few yield all the three. To take advantage of the fruit blossoms requires very special management, for at this time stocks are seldom found near their full strength. Those, therefore, who have little else in prospect must use every effort to have their stocks at their strongest thus early in the season. They must be stimulated to early and continuous breeding, and even then may have to be united two and two before they are fit to enter their supers. Once strong enough to do so they should be prevented from swarming till that particular harvest is over.

Owing to the honey from fruit blossoms being somewhat dark in colour and peculiar in flavour, those who have abundance of Clover in prospect seldom care to have it stored in supers. They welcome it, however, as affording the best stimulus towards getting strong stocks in good time for the more coveted Clover harvest, or towards getting through with such swarming as may be desired before the Clover blooms; for it ought to be a principle in modern management, now that we know how, to allow little or no weakening of stocks by swarming during the height of any honey yield of which a full advantage is to be taken. As far as the Clover season

is concerned this is most desirable, and, as there is time both before and after to make all desired increase there is nothing lost in the attempt. This matter of controlling or preventing swarms is the principal part of good management at this season, for stocks are then at their strongest, and it forces itself daily on the bee-keeper's attention. The various methods adopted to this end will be afterwards described, but we meanwhile press the principle on all who would take full advantage of this or any other shortlived harvest, that there ought to be no weakening of stocks by swarming or artificial division while it lasts. The best laid plans will often fail, and what seems a mania for swarming may take possession of many stocks which must in some degree be deferred to, since in such cases absolute repression will often produce a listless inactivity more to be feared than a certain amount of weakening through division.

A reference to his calendar will enable the bee-keeper to make due provision for the opening of the Clover season in strong stocks already, if possible, entered their supers. Attention to ventilation, doorway and storage room in advance of immediate requirements, will often carry him through the best part of it without much trouble, and a warning look at the date when the harvest closes will enable him by gradually diminishing the amount of super accommodation to insure that few if any unfinished sections will be left on hand.

The advent of the Heather season frequently finds stocks in a condition poorly fitted to take advantage of its extreme richness. Under ordinary management they are weakened by previous swarming, so that only the first swarms are usually in a position to yield any great surplus. Frequently also there is a spell of cold and wet weather after the Clover season which puts a stop to brood-rearing, leaving so many empty cells in the brood nest that the bulk of the Heather honey is stored there, rendering it difficult of appropriation and of less value. A knowledge of these things will guard the bee-keeper who hopes for Heather honey against the evils hinted at. He will take care to maintain his stocks in full strength right into August, and will take special precautions against having the central combs cleared of brood then. These remarks scarcely apply to purely highland districts, for there the conditions are naturally more favourable. Swarming is much later, and so also is the Clover harvest. Indeed the latter generally continues some time after the Heather is in bloom. Naturally, therefore, stocks in such districts are in a better position for taking advantage of this harvest than those in the low country, unless unlimited swarming has been allowed.

It may even be found profitable to take special measures to secure a surplus from sources even later than the Heather. In some parts of England, but more especially in Ireland, there are large quantities of Ivy which produce honey freely even in December. The general weakness of stocks and the usual approach of cold weather have, however, hitherto prevented more than a mere sample of this very peculiar but beautiful honey from being obtained.

The bee-keepers' calendar suggested should contain a record of the average dates at which stocks are found to be naturally at their weakest and strongest, when they, both with and without stimulation, usually commence breeding in the spring, or cease in the autumn, when natural swarming begins and ends, &c. Were these particulars entered after their dates in parallel columns with those regarding the pollen and honey-producing plants, and the beginning and ending of the various honey harvests, a valuable guide as to necessary management would always be at hand. To frame such a calendar here would be extremely difficult, taking into consideration the variety of circumstances belonging to each district in these islands, varying as it does so much in latitude and altitude as well as in the nature of its honey-producing flora.—WILLIAM RAITT, *Blairgowrie*.

(To be continued.)

THE STEWARTON HIVE.

I WITH others would feel much obliged if some of your bee-keeping correspondents would favour us with a drawing of the straw Stewarton hive spoken so much of lately in your valuable paper, and also details as to its management, and where it can be obtained.—FREDK. BULL.

The woodcut (fig. 104) may help your correspondent and others to form an idea of a straw Stewarton hive. The top roll of the hive is in wood, and the straw is sewed to it. The bars are let into the wood and level with the top of it. The interstices between the bars are filled with slides, which are moveable and run in grooves. Our intention is to dispense with the slides and use moveable straw lids instead, as the bees are apt to cement the slides to the bars. The lids will be easily lifted off and on the hives when supers are used. The supers will be made of wood 4 inches deep, and of course same width as the hives, and with bars across them 2 inches wide for honeycomb. In supering the lid will be simply lifted from the top of the hive to the top of the super. The hive is 15 inches wide and 13 deep.—A. P.

TRADE CATALOGUES RECEIVED.

Sutton & Sons, Reading.—*Amateur's Guide for 1883 (with coloured illustrations).*

B. S. Williams, Upper Holloway.—*Catalogue of Vegetable and Flower Seeds.*

James Veitch & Sons, Chelsea.—*Catalogue of Vegetable and Flower Seeds.*

C. Fidler, Reading.—*Catalogue of Seed Potatoes.*

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Vegetable and Flower Seeds (Illustrated).*

H. & F. Sharpe, Wisbech, Cambridgeshire.—*Wholesale Catalogue of Vegetable and Flower Seeds.*

Frederick Roemer, Quedlinburg, Germany.—*Catalogue of Vegetable and Flower Seeds.*

Stuart & Mein, Kelso, N.B.—*Catalogue of Vegetable and Flower Seeds.*

Waite, Nash, Huggins & Co., 79, Southwark Street, S.E.—*Wholesale Catalogue of Vegetable and Flower Seeds.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

To Correspondents.—In consequence of the great pressure on our columns this week many valuable articles on a variety of topics have to stand over to a future issue. Correspondents must not conclude that the notes they have obligingly sent are not appreciated because they are not promptly published; on the contrary, they are prized, and the writers are thanked for their willingness to impart information. We shall always be glad to receive notes of interest from any of our readers.

Book (Penally Abbey).—The work you appear to require is Curtis's "Botanical Magazine," published monthly by L. Reeve & Co., 5, Henrietta Street, Covent Garden. It is edited by Sir J. D. Hooker, and gives coloured illustrations of new, rare, and interesting plants.

Cælogynes (S. M.).—Your plants are evidently in good condition, the foliage, pseudo-bulb, and flowers being quite satisfactory, but not extraordinary.

Chrysanthemums (G. Cole).—It is impossible for us, as we have many times stated, to name varieties of florists' flowers of any kind. Still, we have occasionally given the names of those we could easily recognise. Those you have sent are not typical well-developed blooms, and cannot be satisfactorily identified.

Saponaria calabrica (O. J.).—For early spring flowering the plants ought to be raised in the autumn by sowing the seed at the end of August or early in September. Sown in pots now, the plants grown in a light frame, and subsequently planted out, would be the quickest mode of attaining your object; or the seed may be sown in the open ground during favourable weather at the end of January or early in February.

Snowdrops in Pots (G. G., Yorkshire).—They flower well in pots, but will not endure much heat. The singles are better than the doubles for early flowering. The bulbs you have just received will not flower nearly so soon nor so well as established clumps would if now dug up, potted, and placed in a frame or house having a temperature of about 45°. They must have a light position, and be frequently sprinkled with cold water, the roots also being kept constantly moist.

Hambleton Deux Ans Apple (M. C. B., Hants).—This useful late-keeping Apple originated in Hampshire, and is now grown rather extensively in that county. If you cannot procure trees from a local source your only alternative is to write to some of those large general nurserymen who advertise fruit and other trees in our columns. We never recommend dealers. Such a practice would be manifestly unjust, since there are so many who equally well supply whatever is needed in gardens.

Hawthornden Apple (D. Johnson).—This deservedly popular and valuable Apple was raised at Hawthornden, a romantic spot near Edinburgh, celebrated as the birthplace and residence of Drummond the poet, who was born there in 1585. We have never learnt at what period the Hawthornden was first discovered. The first mention of it is in the catalogue of Leslie & Anderson of Edinburgh; but we do not think it was known about London till 1790, when it was introduced to the Brompton Park Nursery.

Heating Greenhouse (J. D. B.).—By all means have a small boiler and two rows of hot-water pipes, a flow and return, conducted if possible along the front and both ends of the house, as, however good a stove may be, the heat cannot possibly be distributed so regularly as that from pipes heated with hot water and arranged as indicated. If the house is a lean-to and not more than 10 feet high at the back 3-inch pipes will suffice, but if a span roof or lofty you had better have 4-inch pipes.

Barbarossa Grape (Exhibitor).—You are certainly wrong in this matter,

as you may gather by the following description of the true Barbarossa, the fruit of which you have probably never seen. Bunches medium sized, shouldered. Berries slightly oval, or obround. Skin thin and delicate, of a grizzly colour, or pale red, covered with a thin grey bloom. Flesh delicate, juicy, sweet, and with somewhat of a Royal Muscadine flavour, but very much richer. Galesio says it is "the king of dessert Grapes." The Grape which has been grown in this country for some years under the name of Barbarossa is a totally different variety. Its correct name is Gros Guillaume, and it is black, while the Barbarossa is, as its name implies, a rose-coloured or grizzly Grape.

Mushrooms in a Frame (Disappointed).—You have failed because you have acted quite contrary to instructions. Digging a deep square hole in the open ground, filling it with manure in September, inserting spawn and placing a frame over the sunken bed, is not what has been advised nor the way to succeed. You probably did not think when you were "improving on the outdoor system" of culture that you were providing what may be termed an earth cistern for collecting the drainage from the surrounding soil, thus chilling the bed and causing the spawn to decay instead of spreading and producing Mushrooms. In the summer the failure might not have been so complete. Outdoor beds of Mushrooms entirely above the surface of the soil and well covered with litter are now bearing prodigiously. You would have done well to have tried this method of culture before attempting to "improve" upon it.

Cutting Camellias (E. D. O., Wicklow).—When Camellias are quite healthy the flowers may be cut with a portion of the growth attached, not only with impunity but occasionally with advantage, as the plants frequently produce more growths than would have otherwise issued, and a closer habit is induced with a large supply of flowers. It is necessary to sever the shoots near a healthy bud, otherwise the buds will die back as you have stated. If there are no healthy wood buds below the blooms, but the only growing points are near them, that the flowers should be removed without cutting off any portion of the shoot. By examining the condition of the wood and studying the health of the plant you will we think, have little difficulty in deciding on the point you have submitted.

Heating Defective (R. P. O.).—The piping is sufficient in the lower house and the boiler probably sufficiently powerful, but you do not state its size. The fault we suspect is in the arrangement of the pipes, but it is impossible to indicate it from the very imperfect sketch before us. Cannot you send us a larger and better sketch, showing all the pipes and their connections, indicating also the flows and returns? Please say also if both houses are on the same level; and if they are not, the difference between the height of the pipes in the two structures. Your full postal address should accompany your letter. On hearing from you again the case shall have our best consideration.

Carnations Unhealthy (E. C.).—The Carnation leaves arrived so much shrivelled, the paper having extracted the moisture from them, that it is not easy to determine the cause of their discoloration; but we certainly do not attribute it to red spider, and we rather suspect that you have aggravated the evil by your free application of insecticides. They appear to have been attacked by a fungus, and a dry atmosphere and dustings of sulphur would have been the most likely means to effect an improvement, while additional moisture in an atmosphere probably already too moist would have an opposite effect. Defective root-action, especially if caused by over-watering, is an almost certain precursor of spot and fungus. Remove all the affected parts, apply water with great care, not wetting the foliage, providing a dry atmosphere, and your plants may possibly improve. You do not say whether they are young or old, or whether kept in a frame or greenhouse. If old and exhausted they will probably be of little further service, but if young they may with judicious treatment regain their lost vigour.

Libonias Unsatisfactory (Idem).—The condition of the plants indicate that there has been some error in treatment, but in what respect it is impossible for us to say. You say they had a "good shift" in June, but possibly it might have been a bad one. If the roots were much matted, and the soil they surrounded or permeated was dry when placed in larger pots, the shift was a bad one. If water was given too copiously immediately after repotting, as is not unfrequently the case, the shift was also unfortunate, and the plants would have been better left in their original pots and supported with liquid manure. Again, overdryness during the summer, if only for a day or less, causing the roots to shrivel, would lead to the premature fall of the leaves and the non-production of flowers. Torpid root-action is the main cause of the evil, but whether it is the result of over-watering or under-watering we have no means of knowing. Possibly there have been mistakes of both kinds, for we have often known plants allowed to get unreasonably dry and then made and kept unreasonably wet, as if to atone for the initial error; thus a double mistake has been made, and the plants have suffered proportionately. Plant them out in good soil and a warm sunny position next year, and note the lesson that Nature teaches in the cultivation of Libonias.

Culture of Calochorti (Idem).—They can be grown outdoors if you wish, but they will need protection during the winter, covering them with a layer of ashes 3 or 4 inches deep, but they must be planted in well-drained light soil or success cannot be insured. Frames are also suitable for them, the bulbs being planted out in sandy loam, and ventilation well attended to in favourable weather. In pots these plants are very uncertain; sometimes they grow and flower fairly well, and at others they are most unsatisfactory, whatever care is taken with them. Plenty of drainage and similar soil to that already mentioned are necessary for Calochorti in pots.

Gros Maroc Grape (Bute).—As you doubt that this Grape can be grown in a house with Black Hamburg you had better visit Mr. Rivers' nursery at Sawbridgeworth next year, and you will see it growing vigorously, and probably bearing freely, not only in a house with the Black Hamburg, but with a dozen other varieties as well. In that house it commences colouring quite as soon, if not sooner, than the Black Hamburg, and hangs until March. The bunches are not giants, but of good size, the berries being very fine and splendidly coloured. You will do well to remember that the Vine needs more room than the Black Hamburg, as it is a very strong grower; and we have no doubt whatever that, like Gros Guillaume and the Duke of Buccleuch, it will bear better on the long-rod system than by close spurring. But although it succeeds under the conditions named, we are not prepared to assert that its flavour would not be improved under a somewhat higher temperature, the same as is that of its relative Gros Colman. Both these Grapes were introduced from France by Mr. Rivers, and have been at Sawbridgeworth for nearly a quarter of a century.

Situations (A Young Gardener).—Your desire to succeed is a worthy one, and your efforts to obtain a situation under a gardener famed for his abilities is commendable. Whether your plan of operations will answer can only be proved by experience; but unless you can include copies of testimonials from those who can certify to your ability, industry, and general good conduct, we doubt if your letters will do more in the majority of cases than insure a civil answer. Most "famed gardeners" are inundated with applications from young men,

but as a rule those are not placed on the list of candidates for vacancies in the absence of such testimony as we have indicated. Your letter is creditable to you, but we should not have been less favourably impressed with it had you sent your full name and address, and it is not impossible that this would have enabled us to have given you a somewhat different and not less useful reply. However, the hint we have given you may possibly be of some slight service. We know it would be of no use writing to the gardener you name.

Soil for Vines and Peaches (J. B.).—The soil of which you have submitted a sample will, we have no doubt, grow Vines and Peach trees well provided they are in other respects properly managed. We should have little fear of the traces of fungus doing any injury to the Vines and trees, as we have used soil of the same nature for Vine borders with the best results. Still, you will not err by attempting to destroy what little fungus there is, especially as you may improve the soil at the same time. We should turn it over, and on each layer spread a little fresh unslaked lime, simply breaking any lumps larger than your hand. A bushel will suffice for a cartload of soil, and the moist earth will cause the lime to "fall" in the course of a week or so, at the end of which time, if the heap is again turned over, it will be in excellent condition for use. A bushel of half-inch bones mixed with each cartload of soil will improve it for both Vines and trees; so also would an admixture of wood ashes, but neither of these additions is necessary, as the soil is sound and good.

Selection of Grapes and Peaches (Idem).—You ask for seven Vines suitable for growing in the same house for affording fruit from August till Christmas, three to produce white, and four black Grapes. The most easy and certain method for an amateur to produce a supply would be to plant one Vine of Buckland Sweetwater, two of Foster's Seedling, two of Black Hamburgh, and two of Black Alicante, the Alicante to have the warmest position. If we wanted seven varieties we should venture on planting one each of the following:—Duke of Buccleuch, Foster's Seedling, Muscat of Alexandria, Black Hamburgh, Madresfield Court, Alnwick Seedling, and Mrs. Pince, and by having the Muscat and two last named in the warmest position should expect to succeed in our object; but we hold out no kind of guarantee that either you or anyone else of whose cultural skill we have no knowledge would find this selection satisfactory. You must now decide for yourself in accordance with your experience and competency, on which important matters you supply no information. Of Nectarines we doubt if you could do better than plant Lord Napier, Violette Hâtive, Improved Downton, Pine Apple, Humboldt, and Victoria.

Planting Bulbs (C. B., Waverley).—It is fully late for planting Crocuses and Snowdrops, but all the others will do well planted now. It will be a good plan to do as you suggest, placing them close together on an inch or two of leaf soil or cocoa-nut fibre refuse in boxes, and covering an inch or so deep, placing the boxes in a cold frame—in fact, burying them, as, if their sides are exposed, the soil will become dry, if it does not get frozen. Try the Crocuses and Snowdrops also. When roots an inch long are produced replant very carefully so as not to break them in the border, surrounding them and covering the bulbs with leaf soil. If the ground is moderately dry you may plant the Tulips and Narcissuses in the border at once, but if wet treat as directed with the other bulbs. Questions reaching us on Wednesday morning can seldom be answered in the "next issue."

Tea-scented Roses for Beds (Novice).—Tea Roses do not like a strong soil, especially one overlying clay. This more particularly applies to a cold climate; hence if you attempt growing Tea Roses you must make sure of the soil being well drained, and add to it some gritty material so as to open its texture. The plants should be planted about 2 feet apart in the bed in the first instance, the distance being increased in the course of two or three years. In winter the plants will need protection during very severe weather; but it is preferable to take them up early in November, pot them, and keep them plunged in ashes in a cold pit, planting out again early in April. When in the pit the light must be kept off in mild weather. Gloire de Dijon, Gloire de Bordeaux, Abriote, Goubault, Homère, Julie Mansais, David Pradel, Madame de St. Joseph, Madame Lambard, Souvenir de l'Empereur Maximilien, Rubens, Marie Sisley, Madame Ducher, Le Nankin, Madame Margottin, Cheshunt Hybrid, Duchess of Edinburgh, Belle Lyonnaise, Vicomtesse de Cazes, Madame Trifle, Madame Berard, Madame Alexandre Bernaix, Letty Coles, and Marie Van Houtte have been recommended by a cultivator who grows Roses in some of the coldest districts in the north of Yorkshire.

Plants for Affording Cut Flowers (Blackheath).—If your greenhouse is such that you can plant out a number of climbing plants and train them thinly under the roof you will be able to obtain abundance of cut flowers from the following Roses:—Gloire de Dijon, Maréchal Niel, Lamarque, and Rêve d'Or are very suitable for the roof; while Tea Safrano, Niphetos, Isabella Sprunt, Perle de Lyon, and Souvenir d'un Ami can also be planted out if convenient and trained up the end of your house, or grown in pots in such quantities as you think will meet your demands. Hybrid Perpetuals may also be forced in pots, and you will find the following good and useful for the purpose:—La France, Général Jacqueminot, Jules Margottin, Duke of Edinburgh, Louis Van Houtte, John Hopper, and Coquette des Blanches. Lapageria alba and rosea, Clematis indivisa lobata, as well as other deciduous varieties, are also useful for the roof, and will do better planted out than if kept in pots. If your greenhouse is a lean-to you can have Camellias, Abutilons, Rhododendrons such as Gibsoni, Habrothamnus elegans, Tropæolums Ball of Fire or Vesuvius, and other similar plants to cover the back wall, growing them in large pots or boxes, which will give you abundance of flowers without taking up much room of the house. You will also find Azaleas, Epacris, Bouvardias Vreelandii, Hogarth, and the beautiful double white Alfred Neuner three of the best and most useful. Zonal Pelargoniums will be found invaluable, both single and double forms, the latter being the most serviceable for cutting purposes. Tuberous Begonias would do well in the greenhouse, and be useful for cutting during the summer. Heliotropes, Mignonette, Cyclamen persicum, as well as single and double Primulas, the latter being indispensable where cut flowers are in daily request, as they will continue to produce them in succession for six months or more. Chrysanthemums are amongst the most useful of plants for supplying cut flowers from late summer until the month of January. The supply of flowers will not be sufficient to maintain during the summer months when quantities can be obtained from the outside; such, for instance, as Narcissus, Carnations, Phloxes, early and late-flowering Pyrethrums, Roses, and many others which will associate well with flowers from the greenhouse. For the winter supply quantities of Deutzias, Rhododendrons, Ghent and Mollis Azaleas, Lilacs, Spiræas, Guelder Roses, and other hardy flowering plants should be prepared for forcing into bloom in your heated pits. If these are suitable for the accommodation of stove plants you should grow in quantity Eucharis amazonica, Gardenia florida or intermedia, both being free-flowering varieties. Begonias of such sorts as insignis, nitida, nitida rosea, semperflorens grandiflora, Ingrami, Moonlight, Dregei, and weltoniensis you will find valuable for your purpose. Gloxinias raised from seed and grown in your heated pits, and

brought into flower in batches and placed in the greenhouse while in flower, would also be very serviceable. Euphorbia jacquiniæflora and Clerodendron fallax you will also find useful; the latter can readily be raised from seed. If your pits are sufficiently lofty, so that you can grow climbers thinly under the roof, you will be able to obtain a valuable supply of choice flowers from such plants as Allamanda Hendersoni, Clerodendron Balfourianum, Bougainvillea glabra, Dipladenia Brearleyana, and Stephanotis floribunda.

Names of Fruits (O. J.).—Pears: 1, Josephine de Malines; 2, Winter Nelis; 3, Marie Louise, fruit from a late bloom. Apples: 1, Golden Russet; 2 and 3 not known, probably local varieties. (William Heale).—2, Trumpington; 4, Besspool; 5, probably Old Golden Pippin; 6, Golden Noble; 9, Autumn Pearmain, well kept; 10, Autumn Red Calville. The others are under examination.

Names of Plants (J. H., Canterbury).—1, Davallia canariensis; 2, Hymenophyllum hirsutum; 3, Nephrolepis tuberosa; 4, Trichomanes radicans.

COVENT GARDEN MARKET.—DECEMBER 27TH.

The market has continued to be well supplied with all classes of goods, prices remaining the same; and the demand is well met by the supplies.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 0 to 7 0	rapes	lb.	0 0 to 5 0
".....	per barrel	20 0 40 0	Lemons.....	case	20 0 30 0
Apricots.....	doz.	0 0 0 0	Melons	each	2 0 3 0
Cherries.....	½ sieve	0 0 0 0	Nectarines..	dozen	0 0 0 0
Chestnuts.....	bushel	10 0 12 0	Oranges	100	6 0 10 0
Currants, Black..	½ sieve	0 0 0 0	Peaches	dozen	0 0 0 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen ..	dozen	1 0 2 0
Figs.....	dozen	0 6 1 0	dessert	dozen	1 0 2 0
Filberts.....	lb.	0 0 0 0	Pine Apples, English	lb.	2 0 3 0
Cobs.....	100 lb.	45 0 50 0	Raspberries	lb.	0 0 0 0
Gooseberries	½ sieve	0 0 0 0	Strawberries	lb.	0 0 0 0

VEGETABLES.

VEGETABLES.					
		s. d.	s. d.		s. d. s. d.
Artichokes.....	dozen	2	0 to 4 0	Lettuces	score 1 0 to 1 6
Asparagns.....	bnndle	0	0 0 0	Mushrooms	punnet 1 0 1 6
Beans, Kidney	100	1	0 0 0	Mustard & Cress ..	punnet 0 2 0 3
Beet, Red.....	dozen	1	0 2 0	Onions.....	bushel 2 3 2 6
Broccoli.....	bundle	0	9 1 6	Parsley..... doz.	bunches 3 0 4 0
Brussels Sprouts..	½ sieve	1	6 2 0	Parsnips	dozen 1 0 2 0
Cabbage.....	dozen	0	6 1 0	Peas	quart 0 0 6 0
Capsicums.....	100	1	6 2 0	Potatoes.....	cwt. 6 0 7 6
Carrots.....	bunch	0	4 0 0	Kidney.....	cwt. 6 0 8 0
Cauliflowers.....	dozen	2	0 3 0	Radishes.... doz.	bunches 1 0 0 0
Celery.....	bundle	1	6 2 0	Rhubarb.....	bundle 0 4 0 0
Coleworts... doz.	bunches	2	0 4 0	Salsafy.....	bundle 1 0 0 0
Cucumbers.....	each	0	6 1 0	Scorzonera	bundle 1 6 0 8
Endive.....	dozen	1	0 2 0	Seakale	basket 2 6 3 0
Fennel.....	bunch	0	3 0 0	Shallots	lb. 0 3 0 0
Garlic.....	lb.	0	6 0 0	Spinach.....	bushel 3 0 0 0
Herbs.....	bunch	0	2 0 0	Tomatoes.....	lb. 0 3 1 0
Leeks.....	bunch	0	3 0 4	Turnips	bunch 0 2 0 0



POULTRY AND PIGEON CHRONICLE.

MAXIMUM WEIGHT FOR AGE OF CATTLE AND SHEEP.

(Continued from page 582.)

HAVING given the weight for age of young cattle as far back as 1857 and 1869, we will now quote the weight for age of young cattle as exhibited at Islington, taking first a shorthorn steer, fed by Colonel Sir R. Loyd Lindsay, at 102 weeks old weighed 120 stone of 8 lbs. A cross-bred steer shown by Lord Lovat at ninety-one weeks old reached 108 Smithfield stones of 8 lbs. As these two young steers were the heaviest in the Show at weight for age in their class, we must compare these two animals with the two selected at the earliest period; and when we consider that those were only exhibited or slaughtered in country districts, it decides the matter in this way, that no more weight for age has been obtained now than formerly by the young cattle shown this year at Islington. The heaviest animal at Islington this year was shown by Mr. C. T. Lucas; at the age of 190 weeks it only reaches in weight 187 Smithfield stones. It will thus be seen in comparison with young animals it does not show so much weight for age, and scarcely justifying the keeping of adult cattle for feeding as profitable beef.

We will now show the curious and peculiar results of buying prize animals at one show and keeping them for another exhibition the following year. In the Scotch cattle contest this year we find

in Class 27 the cup steer of 1881 reappeared. He is now the property of Mr. J. Cridlan. It weighed in 1881 Exhibition 17 cwt. 1 qr. 21 lbs., and this year, 1882, it has only a record of 18 cwt. 1 qr. 12 lbs. But we find another instance in the cup heifer, a famous conqueror of the year 1881. She weighed at Islington 15 cwt. 3 qrs. 24 lbs., and was shown again in 1882 at Bingley Hall, Birmingham, when she weighed only 16 cwt. 3 qrs. —i.e., she gained by a year's hard cramming 88 lbs., an increase which at beef prices will hardly give twenty pence per week to pay for keep which cost probably over twenty shillings. These are lessons which must teach those who are willing to learn, for it is evident that the Society which admits animals to be exhibited in this way sets an example which offers no advantage or credit to them, nor can any satisfaction be available for the exhibitor.

For the sake of contrast we will give an instance of keeping cattle on from one year to the next. Mr. James Crew occupying good grazing pastures of his own in the vale of Wincanton in Somersetshire. As near as we can recollect the period, he purchased two oxen of full age at Salisbury Christmas Cattle Market in the year 1854, and gave £64 for the pair of Devon oxen, and fed them on his own occupation on hay and water only, the produce of his own pastures, with a covered shed to run into at will during the winter until the grass came. They were then grazed for the summer, and hay-fed again in the autumn, without cake or corn, or anything besides the produce of his pastures in hay or grass. These animals were taken to Salisbury Christmas Cattle Show again the following year, and were sold for slaughter at £128. We have no record of the weights or increase, but give the account as an outside profit on the method of keeping and feeding just as Mr. Crew told us. We further believe that these oxen had been worked on the land for several years previous to the first purchase, in which case it is an excellent example of what may be done by others under similar circumstances.

In our business and correspondence with experienced men we are confirmed in the assumption that we do not now meet with oxen which weigh more than 210 Smithfield stones, and then only does it occur in the case of worked bullocks of from six to seven years of age, which can only be reckoned as 210 stones in 312 weeks. But when animals are in full condition and weight at from two and a half years to three and a half years of age they cannot be kept to a profit beyond the latter period after having been fed the whole time with full measure of best food. At these large Christmas exhibitions the feeder now gives no account of the kind of food used and the method of feeding; but years ago we recollect well, when we reported the shows held in Baker Street by the Smithfield Club, the food, &c., used was stated by the exhibitor of his cattle and sheep, and we think this is a serious omission in the present arrangements so far as the rising generation of farmers are concerned.

We will now proceed to the consideration of weights for age attained by sheep and lambs, and in relation to which we find a great revolution has occurred during the last twenty or thirty years. For instance, it is recorded that the long-woolled Lincoln sheep as wethers when fat have been known to reach the weight of 60 lbs. per quarter, or 30 stones the carcass, at three years of age, the mutton, of course, not being so valuable as that of the smaller breeds. We give an example. Mr. Clarke of Canwick in 1827 exhibited two wether sheep in Lincoln market. When slaughtered one weighed 32 stones 5 lbs.; the other 31 stones 2 lbs. At the same period the Leicesters and Cotswolds also reached as wethers heavy weights, but not so much at the same age as the instances we have given.

WORK ON THE HOME FARM.

Horse Labour.—Ploughing and sowing the Wheat land is now much behind, and on many farms in various strong-land districts in the western counties but little has yet been sown. This work must therefore be attended to, making the most of every day when the weather is fine, or even part of a day; for, in fact, the ploughing and sowing or drilling should be going on simultaneously, so that as fast as the land is ploughed the seed should be sown up close to the plough. This applies to land where roots have been fed off by sheep as well as land hitherto rendered impossible to work by reason of the succession of adverse weather, otherwise field work is nearly suspended. The ploughing, however, for next year's root crops and Potato crop may be continued upon all friable soils in the absence of rain; with these exceptions but little ordinary work can be done. Carting out manure to heap in the field where required either for next year's Mangold or Potato crop may be done, but some mellow earth should be placed as a floor to absorb the drainage from the heap. To prevent heat and waste afterwards the dung should be drawn by the carts, and when finished some matured earth should be laid over the top of the heap, which will prevent undue fermentation. Also repairing roads may now be done: shaping the bye roads of the farm may also be done, by digging and carting away to heap the

sides of the roads, so that the water may readily escape to the water table or outside of the roadway. When ordinary roadways through and about the farm, and between the fields are managed in this way no gravelling or other materials are required after the roads have been properly shaped with outlets for the water from them during the winter months in each year. Nor must this be considered an unprofitable matter, because if the earth and parings are removed every year to heap, the proceeds will be available for all purposes of mixing with and making compounds or compost heaps with manure for pasture lands, as well as for use as absorbent materials to be used at the bottom of pens where pigs, cows, &c., are kept, and in stables where cart horses are accommodated. Drawing timber, and the proceeds of the underwood grown in the coppices and hedgerows when made into different items for sale, such as hurdles, bavins, hoops, and hoop rods, &c., may now be proceeded with, so that such work may not interfere with important labour on the farm in the more busy times of the year. If frosty weather occurs manure may be drawn on to the young Clovers direct from the farmyard, both box manure and that from the pig and cow pens. Earth and earthy composts may also be drawn out and spread upon any meadow land which under ordinary circumstances would not bear the weight of the horses and carts.

Live Stock.—Preparations should now be carried on for the lambing season by getting a dead fold made on some dry spot and covered with earth, so that when the bedding of the fold is completed the urine may be absorbed, and preserved as long as the ewes are kept therein. A sheltered spot a little on the incline should be chosen for the position of the fold, and if it can be obtained near to the shepherd's residence so much the better; but when it is not made near to his cottage, the shepherd's van or moveable house in general use on most farms will accommodate the shepherd and his assistant during the lambing season. So long as frosty weather prevails Cabbages are the best food for the ewes before and just after lambing, and until common Turnips can be made available; but we do not like either Mangolds, Swedes, or Turnips cut and used for feeding ewes in troughs before or just after lambing, for we have known a great injury done by the ewes eating roots in large quantities at such times. The dry flocks, both tegs or hoggets, will now be doing well; for although the weather may be wet and the land dirty, if the food is cut and used as trough food, and if cake or corn is used for feeding let it both be reduced to meal and have it mixed with the cut roots, for in this way every animal gets its share of the cake, &c., as well as roots, but the troughs should not be overfilled and food left for the night. The great advantage, however, in mixing roots and meal at feeding time will be found in the health of the animals, because every one gets its fair share of the superior food, and as it enters the stomach together one material corrects the other, and prevents any laxative effect or other internal injury. The milch cows should now be housed when the weather is adverse; and unless the pastures are very dry they should not go into them, and avoid their treading by a little airing in the farmyard or home paddock, and be fed at the stalls morning and evening only. They are now generally coming forward to calving time; straw or inferior hay with a little decorated cotton cake in meal mixed with the cut roots will keep them in useful condition, because after the cows go dry and they are kept too highly they are apt to make fat internally, which frequently produces an adverse calving time.

POULTRY AND PIGEONS

CELEBRATED POULTRY YARDS.

MR. W. COOK AT WEST CHISLEHURST.

WE some time since reviewed a work called the "Poultry Breeder and Feeder," of which Mr. Cook is the author, and which is published at this office. This work has called forth some severe criticism from at least one quarter. We desired in the interests of fair play to see for ourselves what Mr. Cook has actually done in the direction indicated in his book—namely, the keeping of poultry simply with a view to egg-production, with little or no regard to fancy qualities. With this object in view we communicated with Mr. Cook, and asked his permission to visit his poultry yard. This was at once accorded, and on the 11th inst. we paid our contemplated visit.

The yard can hardly be called a celebrated one in the ordinary acceptance of the term, but we think it deserves to be so characterised on account of the wonderful results obtained by its owner in the very limited amount of space at his disposal. Mr. Cook's house is small, forming one of a terrace of similar houses, and the fowl yard occupies about half the garden, a piece of ground less than 20 feet square in fact. At one side is a well-built wooden fowl-house, lighted with a window, at the other side a shed boarded on two sides and part of the front; each of these structures is about 8 feet in length by 5 or 6 feet in width.

In this yard were twenty-six adult birds and some half a dozen chickens. Of the twenty-six birds half were hens and half pullets. A large Golden-spangled Hamburgh cockerel completed the stock.

At Mr. Cook's request we noted down the particulars of the various

crosses of which he had examples. They were as follows, the name of the male bird being in each instance given first:—Buff Cochin—Coloured Dorking; Partridge Cochin—Light Brahma; White Dorking—Light Brahma; Black Red Game—Light Brahma; Black Red Game—White Dorking; Black Red Game—Golden-pencilled Hamburg; Black Hamburg—Dark Brahma; Golden-spangled Hamburg—Partridge Cochin; Golden-spangled Hamburg—Dorking; Houdan—Dark Brahma; Houdan—Light Brahma; Houdan—Partridge Cochin; Houdan—Golden-spangled Hamburg; Houdan—Black Hamburg; Houdan—Minorca; Malay—Dark Brahma; Malay—Coloured Dorking; Spanish—Dark Brahma; Spanish—Partridge Cochin.

The owner pointed out to us the bird or birds of each cross as he named them; and we may say that, as we had previous knowledge of several of the crosses, and the examples pointed out to us corresponded in all respects with what we knew birds of these crosses to be, we were able in this way to verify the accuracy of Mr. Cook's information. All the birds were most healthy in appearance, and, with the exception of one or two rather old hens which were heavy in moult, had the appearance of being in full lay.

We noted down from the rough account book in which the laying results are kept the following figures:—The total for August from twenty-six birds was 494 eggs, for September 373, for October 219, for November 204, and for the eleven days of December which had elapsed 106. The December figure we thought specially worthy of note, as the day of our visit was the last, or nearly the last, day of the severe frost which had continued for more than a week, and which had entirely checked the laying of such of our own birds as were doing anything in that direction. We hope early in the year to be able to give the complete figures for 1882, but it is worthy of remark that during the period of four months of which we have already a complete return, and which are amongst the worst laying months of the year, each bird averaged fifty-three and a half eggs. Even if this proportion only were kept up throughout the year, each bird would lay 160 eggs.

These results are attained, not from what Mr. Cook believes to be the best crosses, but from a variety of birds kept to exemplify many different crosses, bred, however, from parents selected chiefly for laying qualities. The birds are treated in the way indicated by Mr. Cook in his book. They are fed on warm soft food in the morning, grain in the evening, and are given warm water to drink. In addition they are given at this season of the year, four or five times a week, some of the tonic powder specially prepared by their owner. This is mixed in their soft food. We noticed also crushed oystershells in the yard, and the birds were picking over a barrowful of horse manure thrown down to afford them employment and amusement.

As a further proof that Mr. Cook has gone very thoroughly into the matter of the laying qualities of individual birds, we may mention that he showed us a basket of eggs, being those gathered during the preceding couple of days, and pointed out to us the eggs laid by birds of most of the crosses which were represented in his yard. Many of these eggs were very fine, those of the Houdan crosses being perhaps the largest. At Mr. Cook's request we visited with him the house of a gentleman living in his neighbourhood who manages his poultry yard on Mr. Cook's method. This gentleman keeps a large school, including several boarders; and in addition to supplying the wants of the house he is enabled to spare, even at this season of the year, a considerable number of surplus eggs. We did not take note of the exact number of hens kept here. The yards were of small dimensions, extending merely across the end and a few feet down the sides of the garden of the large villa in which the gentleman resides. We estimate, however, that there were about thirty hens. Of these one lot consisting of Black Hamburgs were only just through their moult and had not recommenced laying. The others were crossbreds of various kinds, and from these there was a return, as their owner assured us, of from eight to twelve eggs per day. All the birds were in prime condition, which their owner attributed to the use of the powders already mentioned. He stated voluntarily that since using these and working upon Mr. Cook's method as to feeding, &c., he had had more than double the quantity of eggs from his fowls.

We have hitherto confined ourselves to an accurate statement of what we saw and of what we were told by the gentleman to whom we have just referred. We have done this because we desired to put the matter before our readers and allow them to judge for themselves. We now add some information gathered in the course of a long conversation with Mr. Cook.

He has for many years devoted considerable attention to the development of laying qualities in birds of various pure breeds. The birds of these breeds he is not now able to keep at his own place; they are distributed amongst the yards of friends in Chislehurst and Bromley, who supply him with eggs for hatching out birds of the pure breeds or crosses which he desires to have. In this way, though his own place is but small, he has been enabled to have more actual experience of various crosses than many people with large establishments could manage. The results of his experience are to a great extent given in his book. We questioned him, however, as to some matters upon which we thought a little additional light could be thrown, and he most kindly afforded us the fullest information on every point.

In his book, as we have already noted, he speaks much more of

Cochin than of Brahma crosses. Our experience has led us to believe that, other things being equal, a Brahma is superior to a Cochin for the purpose of crossing, more especially as regards the table qualities of the progeny. Mr. Cook entirely agreed as to this, and said that it was partly through accident that he had had so much more experience of Cochin than of Brahma crosses; and it was also partly in consequence of the Cochins which he first used for crossing being much better layers than the Brahmas, and thus giving a better laying result in the progeny. We also suggested that a Minorca was, in our view, preferable to a Spanish bird for crossing purposes. As to this Mr. Cook agreed with us, as, indeed, he has stated in his book, and it appeared that here also the employment of Spanish instead of Minorcas had been chiefly the result of accidental circumstances.

We further wished to have Mr. Cook's view as to what were for general purposes in his opinion the most profitable crosses. Here he again agreed with us that Houdan-Brahmas, Minorca-Brahmas, and Hamburg-Brahmas deserve to be placed at the head of the list. He has recently also made trial of Plymouth Rocks for crossing with Houdans and Minorcas, and has found the results of these crosses so far very good. The very best cross within his own experience for laying has been between Golden-spangled Hamburg and Partridge Cochin. These birds, in addition to their useful qualities, are handsome bright-coloured birds, which, as he said, greatly improved the appearance of a yard. He had in his sitting-room a stuffed specimen of a bird of this cross, one of five sisters remarkable for laying. He told us that in one week in December, 1879, he had from these five birds twenty-nine eggs, which, sold at 3d. each, made the return for the week 7s. 3d., a result certainly noteworthy.

In reviewing Mr. Cook's book we stated that we thought he had hardly given sufficient emphasis to the fact that the wonderful laying results recorded were from birds bred from strains specially selected for laying qualities. The author assured us he fully intended to give emphasis to that fact, which he considers of primary importance. He agrees with us, however, that even from parents of but indifferent laying qualities, provided they be of breeds which were originally good layers (before being spoilt for laying by being bred up to exhibition standard, &c.), much better results may be expected from the progeny of a first cross than from the birds of the pure breeds. Just as in the case of fancy characteristics a cross causes the birds to revert to original qualities undesirable from this point of view, so a cross between birds whose ancestors were good layers causes the progeny to revert to these good qualities, and to produce a result in eggs superior to that obtainable from the pure breeds themselves.

OUR LETTER BOX.

Earth Floors in Stables (R. O.).—You ask if nag horses are allowed to stand on earth floors throughout the day without litter of any kind. We say Yes, just as well and far better than when allowed to stand on pebbles or any other impervious floor, because it is so much softer and better for the feet. If the dung is cleared away the urine will sink quickly into the earth if it has been laid in quite dry and properly rammed down, and will not then sink so as to form puddles on the surface if in boxes 12 feet by 12 feet. Still, if in stalls where the urine always falls so much in one place it must be kept level on the surface by earth repairs. Cows should stand in pairs in double stalls 7½ feet wide, each cow being tethered to the corner of the stall or feeding manger. The feeding box at each corner should be 2 feet square at top, 1½ foot deep, and 1½ foot wide at bottom; but in order that each animal should feed in common upon hay or straw the space between the boxes should be used for that purpose, the manger being 2 feet wide, 2 feet deep, and 1½ foot wide at the bottom.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882. December.		Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Snn.	17	29.913	47.2	46.4	S.W.	39.2	49.4	41.0	50.4	40.3	0.022	
Mon.	18	29.670	46.9	46.1	S.	40.9	48.3	44.3	50.7	40.9	—	
Tues.	19	30.035	42.4	41.6	E.	41.1	45.6	36.9	51.9	32.2	—	
Wed.	20	30.330	35.2	35.2	N.E.	49.1	43.7	32.7	51.9	30.0	0.052	
Thurs.	21	29.912	46.4	45.9	W.	40.2	48.5	33.3	73.6	31.1	—	
Friday	22	29.817	37.0	36.8	W.	40.2	43.2	34.4	55.3	33.7	0.035	
Satnr.	23	29.573	39.7	37.1	N.	39.5	42.8	36.1	62.2	31.0	—	
		29.893	42.1	41.3		40.2	45.9	37.0	56.4	34.9	0.109	

REMARKS.

17th.—Dull throughout, with sprinkle of rain at 3 P.M., and slight break in the clouds at 7 P.M.

18th.—Dull at first; day much finer, with clear sky.

19th.—Fine, misty latter part of day.

20th.—Foggy and dull, rather bright for a short time at noon.

21st.—Much finer, brighter day, moonlight night.

22nd.—Fine morning, misty afternoon, damp evening.

23rd.—Fine and bright.

Much milder than the previous week, and rather above the average temperature.—G. J. SYMONS.

